PAPER TRADE JOURNAL

OCTOBER 17, 1960

How do you stack up to the 20 good rules for groundwood mills?

Marathon's new board machine has unique calender roll crown control

Most bleached board finishing rooms lose money. Does yours?

Deinkers fifth annual confab in Wisconsin sets record size

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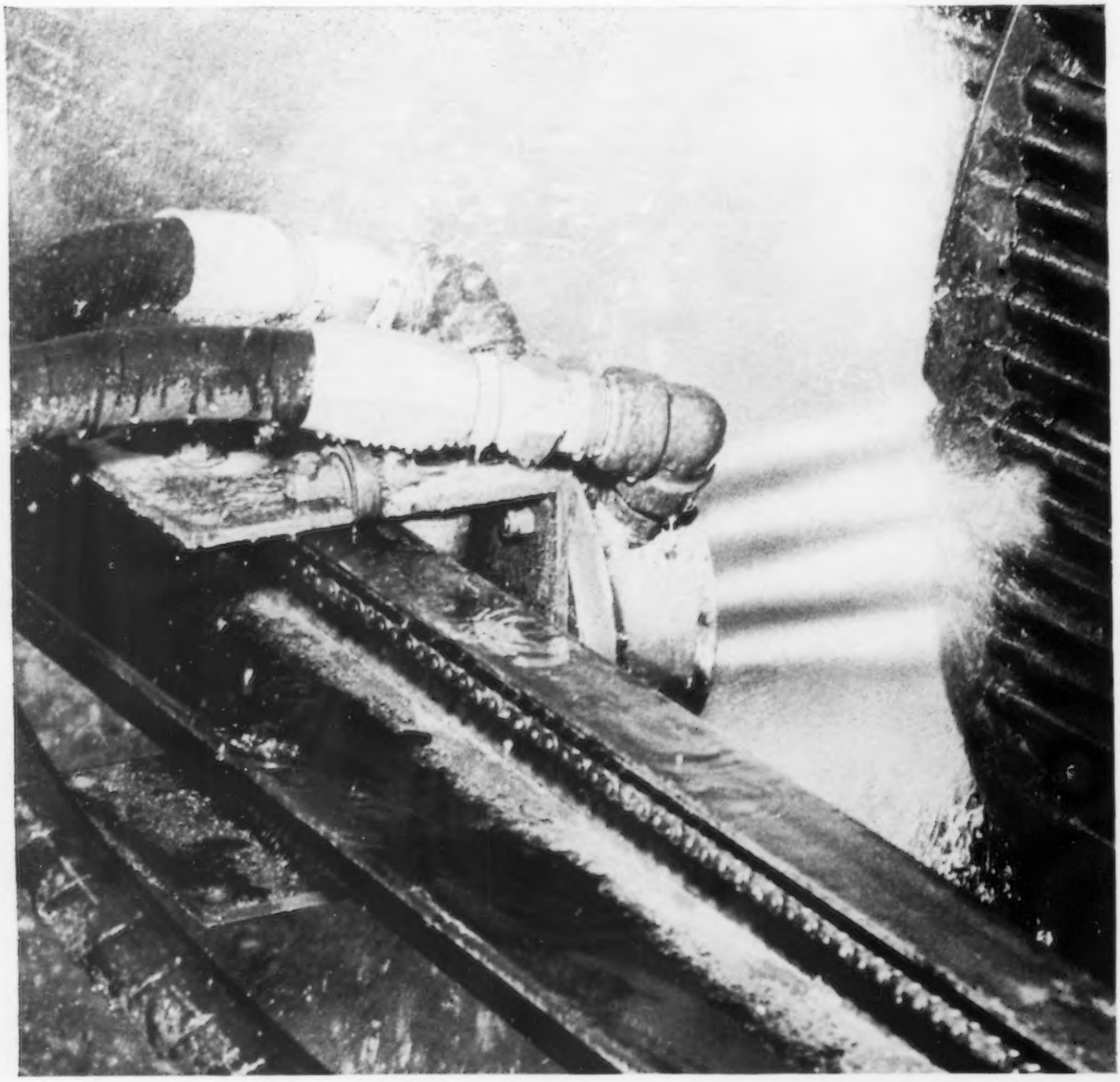

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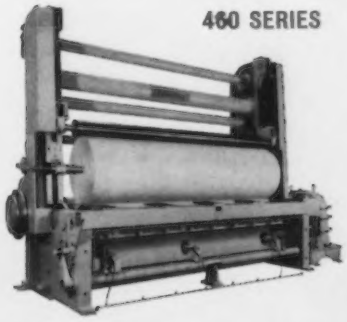

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

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October 24-28, TAPPI Engineering Conference, Hotel Robert Meyer, Jacksonville, Fla.

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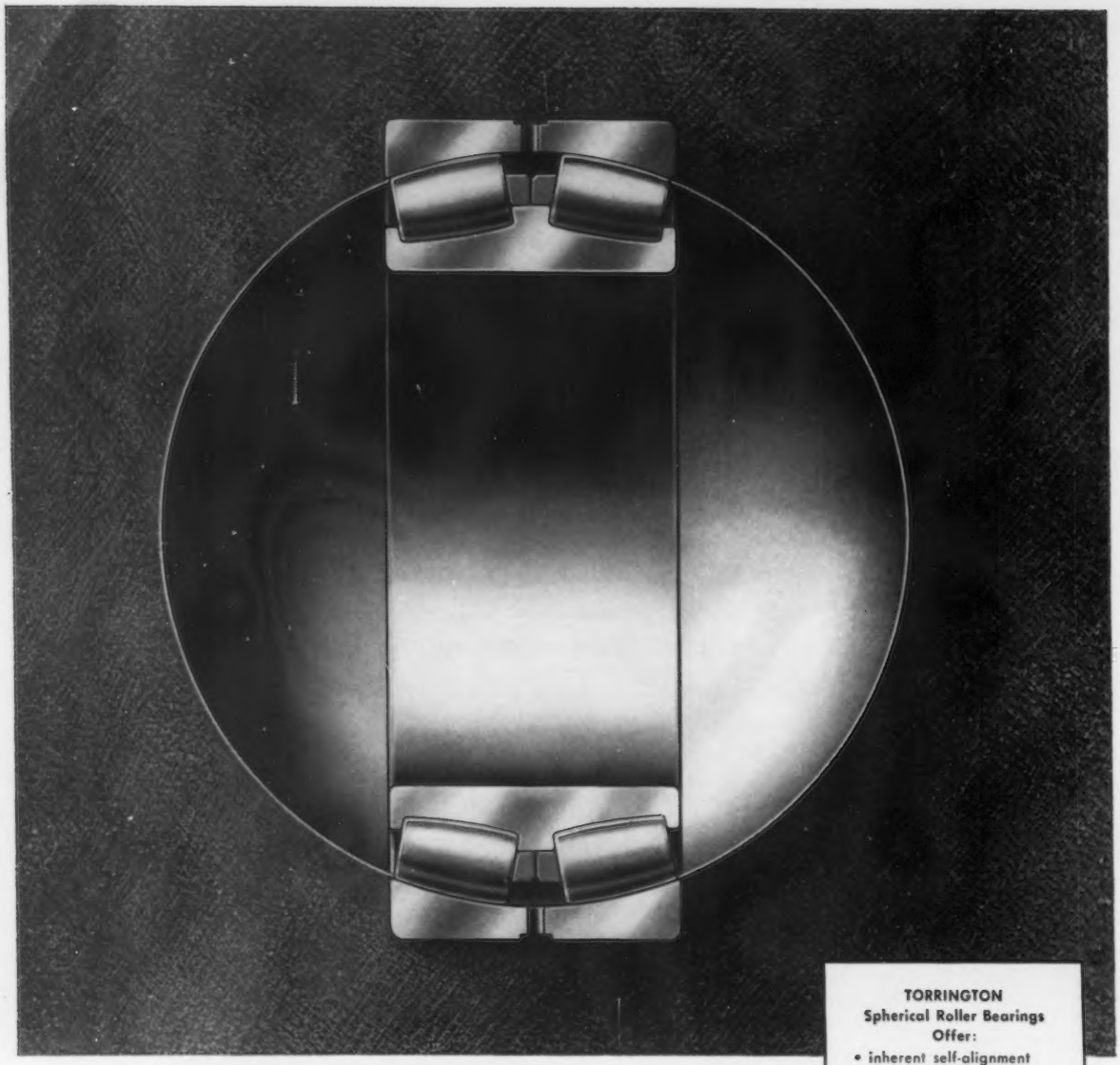

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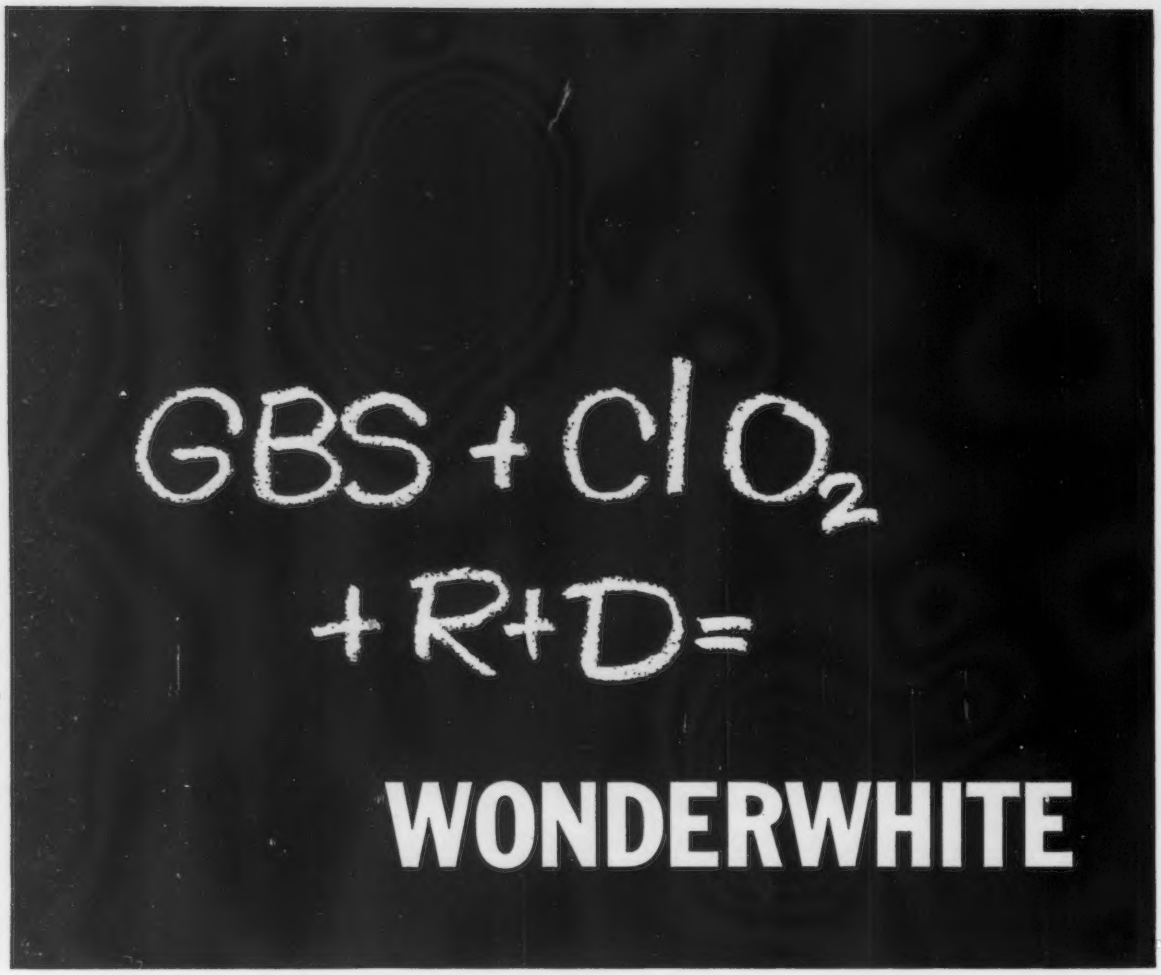

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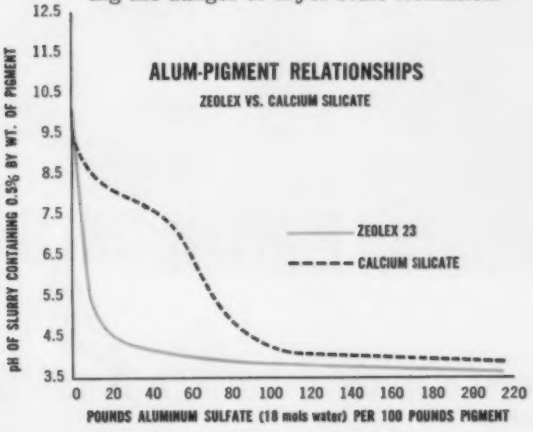
The Zeolexes are finely divided synthetic sodium silico aluminates, presently made within the following ranges of physical properties:

Brightness (G.E.)	93-95
Average Particle Diameter (microns)	0.02-0.05
Oil Absorption (cc/100gm)	125-165
Surface Area (B.E.T.)	50-200
Refractive Index	1.51-1.55
pH (20% slurry)	5-12
Specific Gravity	2.1
Density (lbs./cu. ft.)	10-20

This graph compares Zeolex 23 with calcium silicate pigments now being used as paper fillers. Note the low alum demand with Zeolex—in itself an economy—lessening the danger of dryer scale formation.



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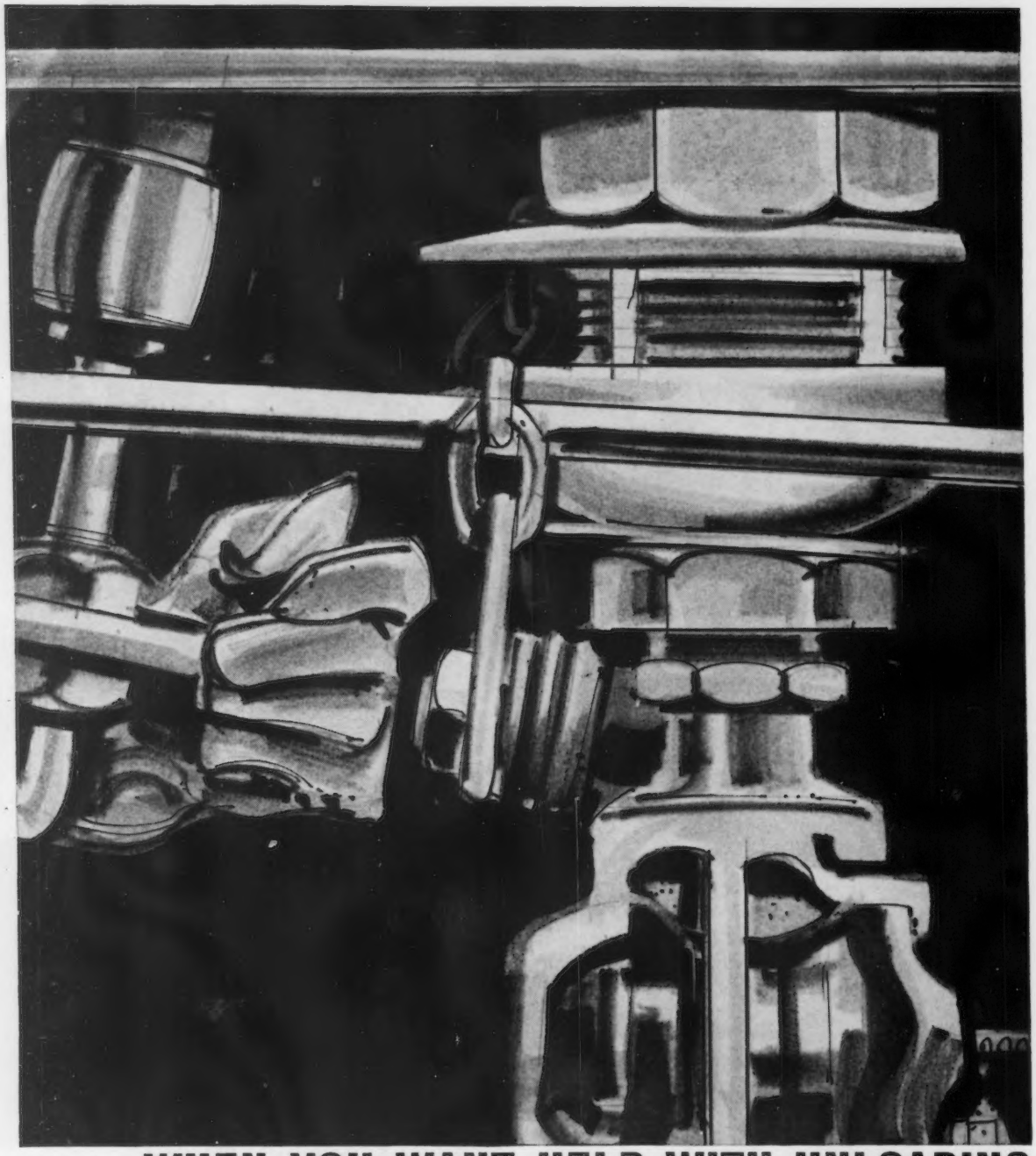

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is available on request. Write on your company letterhead,
and include your name, and your job title.

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Sandoz recognized the need; now makes much of the data available in a single volume. Although primarily about Sandoz products, the new publication indexes dyes, encountered in the trade, from all major manufacturers. Representative sections are listed in the adjacent column.

1. **PLUS-VALUE DYES FOR PAPER**
   Each dye, coded; plus its Color Index Number.
2. **SPECIALTIES FOR PAPERMAKERS**
   Sandoz dyes with no prototypes, and dyes with special uses.
3. **DYES FOR STOCK**
   Colors recommended for use in the beater, pulper, etc.
4. **DYES FOR SURFACE APPLICATION**
   Specific recommendations for calender staining, etc., with solubility limits indicated.
5. **INFORMATION ON PAPER DYE PERFORMANCE**
   Affinity for clay, side-properties, optimum pH, etc.
6. **FOR SPECIFIC PAPER GRADES**
   Specific recommendations for specific grades.
7. **FOR YOUR CONVENIENCE**
   A ready-reference listing of dyes used in the trade.

PERHAPS *you're one of the lucky ones who has already received your copy; if not, just drop us a note or 'phone us at any office listed at right.*

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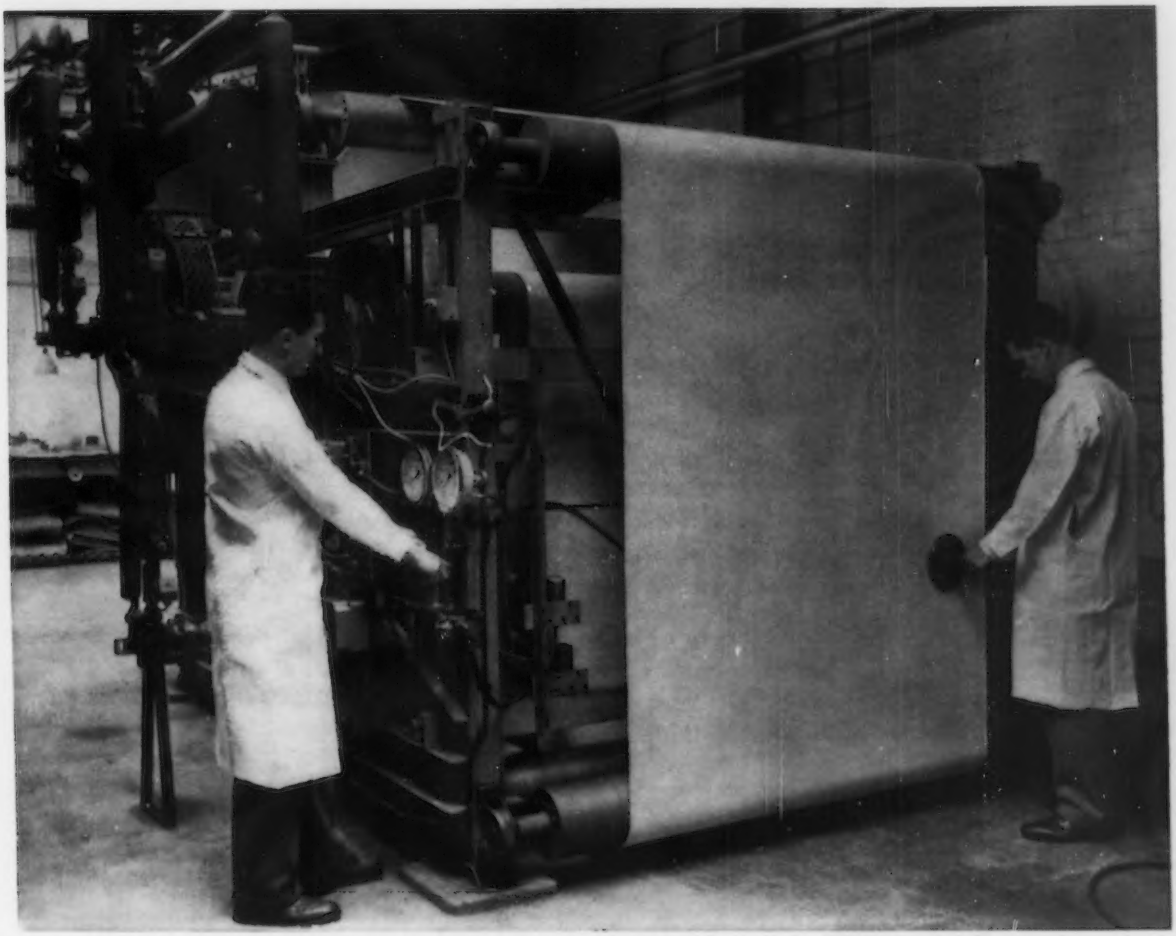

Some of Scapa's Research Machines are large and complex. Here is a machine designed to ascertain the influence of Dryer Felts on the drying of paper. It runs up to 3,600 fpm and the cylinders take steam at 150 psi.

R1

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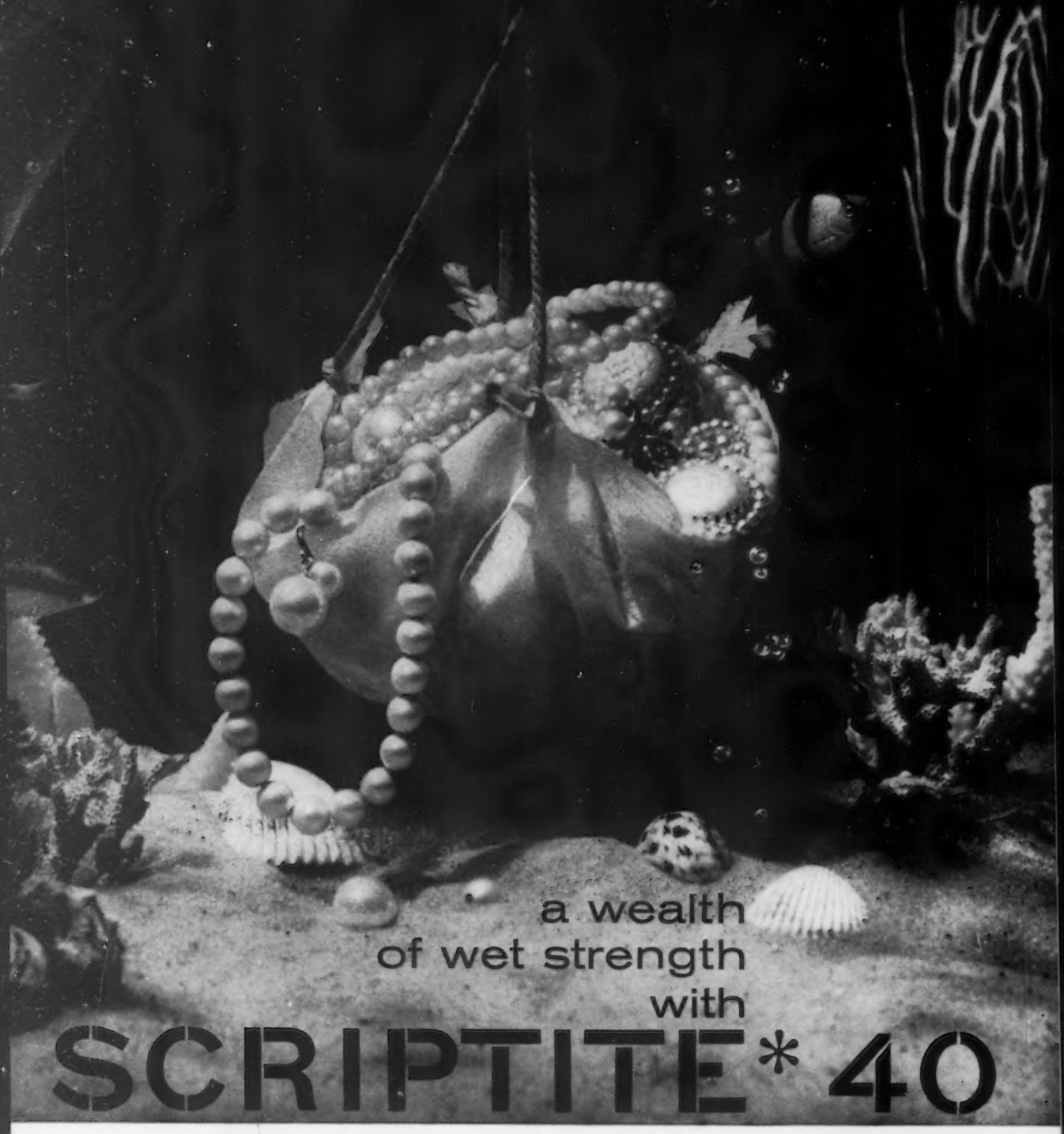

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A cationic urea-formaldehyde resin, Scriptite 40 imparts a high degree of wet strength to paper, with less resin add-on. In addition to raising tensile and wet bursting strength, Scriptite 40 also improves dry tensile strength, dry mullen, wet rub resistance, internal sizing, pick resistance, dry stiffness, dimensional stability, and folding resistance. For technical assistance, samples, and literature, write to Monsanto Chemical Company, Plastics Division, Room 779, Springfield 2, Massachusetts.

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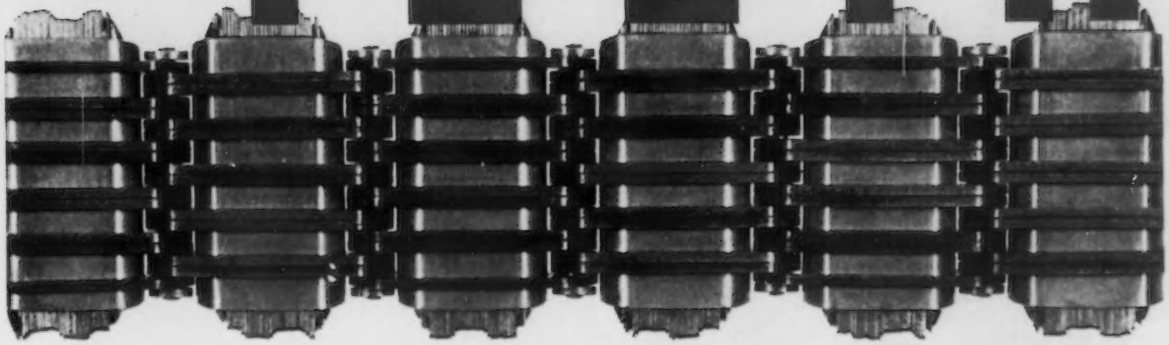
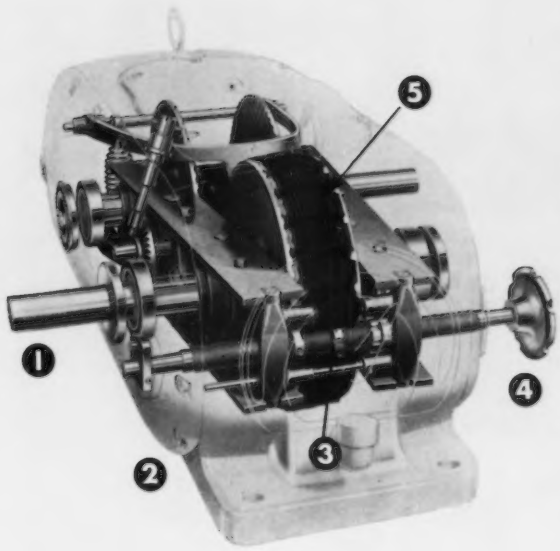
*SCRIPTITE: Reg. U. S. Pat. Off.

PUT TEETH



IN YOUR SPEED CHANGING JOBS



Get the positive, accurate control that only LINK-BELT's chain-driven P.I.V. can deliver

Yes, you put teeth into your speed changing jobs because Link-Belt P.I.V.—unlike other variable speed drives—utilizes an exclusive metal, self-tooth-forming chain.

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Makes changing speed simple too! A turn of the control screw simultaneously varies the effective diameters of the conically shaped wheels—closing one set, spreading the other. At the same time, the self-tooth-forming chain automatically adjusts to provide desired ratio between the input and output shafts.

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(2) All-metal, totally enclosed—unaffected by atmospheric conditions. All vital operating parts splash-lubricated from a common housing reservoir.

(3) Easy-view speed indicator facilitates speed selection and adjustments to meet all requirements.

(4) An infinite number of positive, stepless speed adjustments may be made with manual, electric, pneumatic or hydraulic controls.

(5) Self-tooth-forming chain is made from a series of overlapping steel links. Links contain packs of hardened steel laminations or slats (shown above). Slats grip toothed wheels positively without slippage —give the speed you need at any setting.

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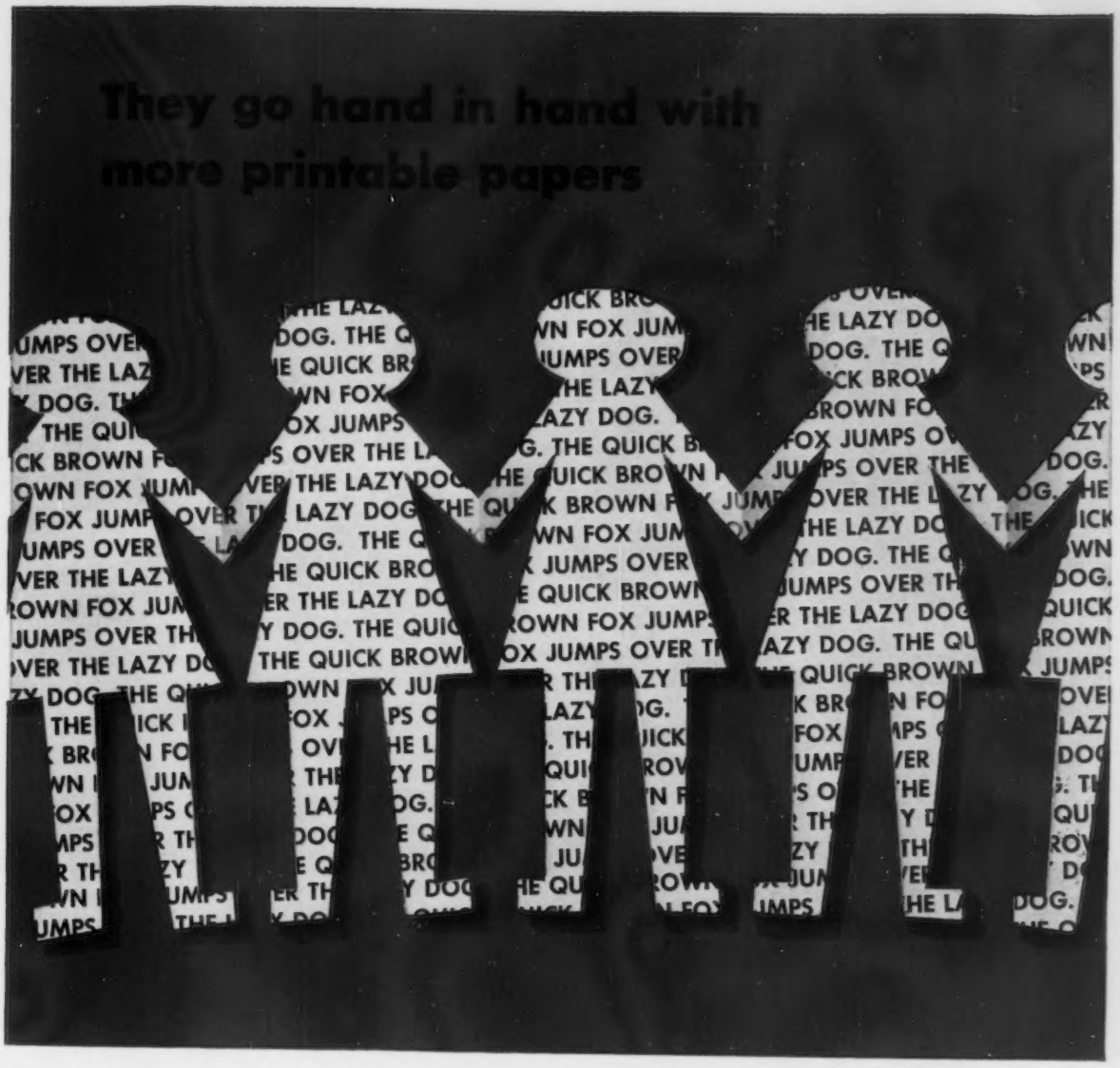
SINCE 1866 REFINERS • CONVEYORS • FEEDERS • SCREENS • MIXERS • DRAINERS • FIBER PRESSES • STOCK PROPORTIONERS



GELVA® C-3 and C-5 polyvinyl acetate resins

GELVA C-3 and C-5 Copolymer Resins applied from ammonia solutions provide improved wet strength, surface erasability, ink receptivity, surface gloss and grease and abrasion resistance. Add to these . . . increased Mullen, wax pick, tensile and fold strength, plus easy broke recovery, and you have the reason for the rapidly increasing use of these products by the paper industry.

Coast-to-coast warehousing, Shawinigan's large staff of research chemists who are ready to help you with your particular problems, and highly trained field representatives add up to an organization that can help you improve your products and your profits. Write to Shawinigan Resins Corporation, Dept. 7R, Springfield 1, Massachusetts.

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES NEW YORK CLEVELAND SAN FRANCISCO GREENSBORO ST. LOUIS

GELVA® *polyvinyl acetate resins by* **SHAWINIGAN RESINS**

SYMBOL OF NEWNESS / 93% of Goulds Pumps shipped to you in the past year were post-1950 design

FOR EFFICIENCY IN BEATER APPLICATIONS...

UNITANE® O-110 Titanium Dioxide

This pigment's exceptionally uniform particles disperse quickly and easily... do the best job possible in beater applications. There are no lazy particles in Unitane O-110. Ask your Cyanamid Pigments representative for further details.

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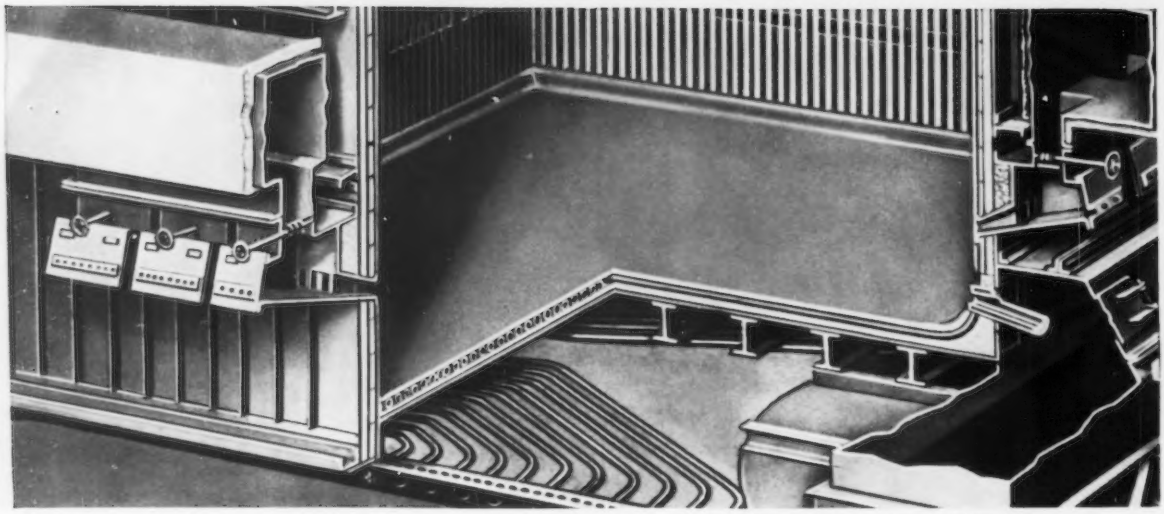
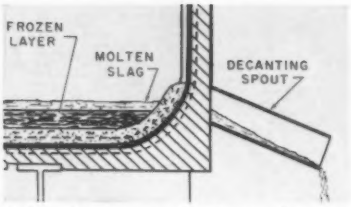
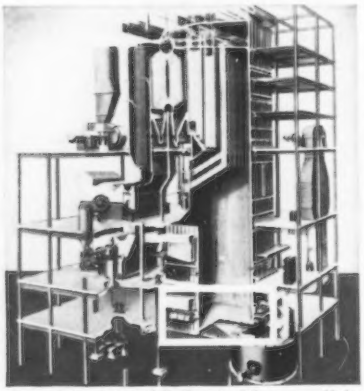


Cutaway view of the C-E hearth showing watercooled floor and decanting spout.

Watercooled Decanting Hearths Score 157 Maintenance-Free Years



Molten slag never touches furnace floor, preventing damage to hearth and contamination of slag by eroded refractory.



One of the latest C-E Chemical Recovery Units — an important part of the modern kraft pulp process. Note that slag from waterscreen and superheater can fall directly to hearth.

. . . in 50 C-E recovery units

Since the development of the watercooled decanting hearth by Combustion Engineering in 1951, 50 C-E Chemical Recovery Units have served an aggregate of 157 years *completely free from hearth maintenance.*

The decanting principle — key to this durability — employs a *level,* watercooled furnace floor. A layer of solidified slag, kept frozen by the watercooling, covers the floor. Molten slag resting on this hardened surface drains off (decants) through a spout located several inches above the frozen layer. Hearth refractory and floor tubes are never exposed to erosion by the hot liquid slag, hence rarely need repair.

The C-E Decanting Hearth eliminates a common cause of furnace shutdowns. Other C-E advances offer improved recovery unit control, flexibility and efficiency. And, because of the high availability experienced with modern C-E recovery units, pulp mills can now depend on one large-capacity unit in place of two smaller ones — with considerable savings in the cost of maintenance and operation. For interesting details, call the C-E office nearest you or contact the C-E Paper Mill Division in New York.

COMBUSTION ENGINEERING

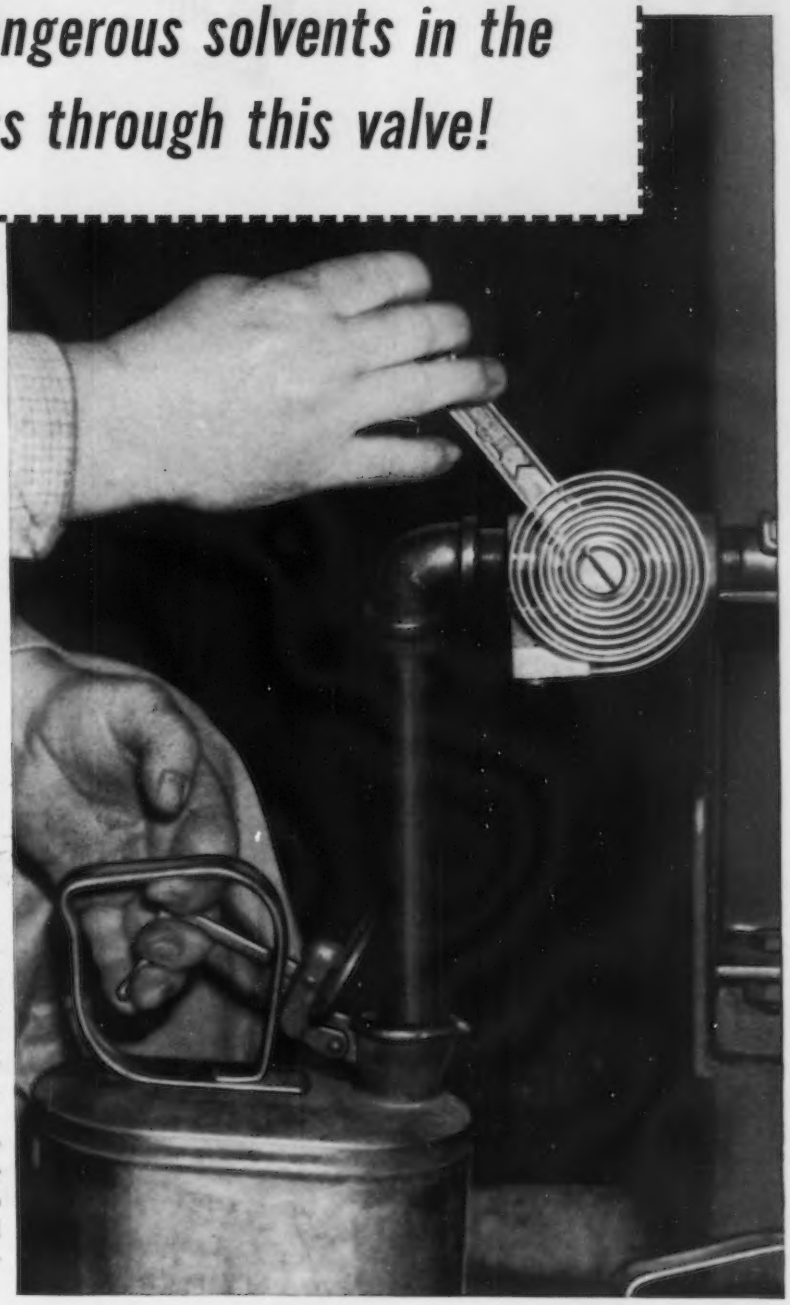
C-269

Combustion Engineering Building, 200 Madison Avenue, New York 16, N. Y.

CANADA: Combustion Engineering-Superheater Ltd.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

The most dangerous solvents in the world pass through this valve!



But it's a *safe* passage. The ROCKWOOD ¾" (Fig. 802) Self-Closing Ball Valve is designed for *smooth, leakproof* handling of highly flammable liquids. A Rockwood Exclusive!

Take a typical installation at an experimental station of one of the nation's largest chemical companies. Here 36 different solvents, ranging from acetone to xylene, are dispensed from bulk containers. All types of self-closing valves were tried and evaluated for this critical job. None equalled ROCKWOOD for positive performance.

Unique ROCKWOOD Full Round Flow design holds turbulence to an absolute minimum — keeps static at a low level. Flash potential is negligible, greatly reducing fire hazard. In addition, the exclusive "*Spring Pressure* Compensation" keeps ball and seat in snug contact — assures leakproof, dripless shut-off, compensates for wear. Bronze valve body and Teflon trim resist corrosion. After 11 months and 103,200 open-and-shut cycles the company reports: trouble-free operation since installation.

Be as safe and sure with your solvent handling. Send coupon for complete details on the ROCKWOOD Self-Closing Ball Valve. Tested and listed by Underwriters' Laboratories, Inc.

ROCKWOOD BALL VALVES

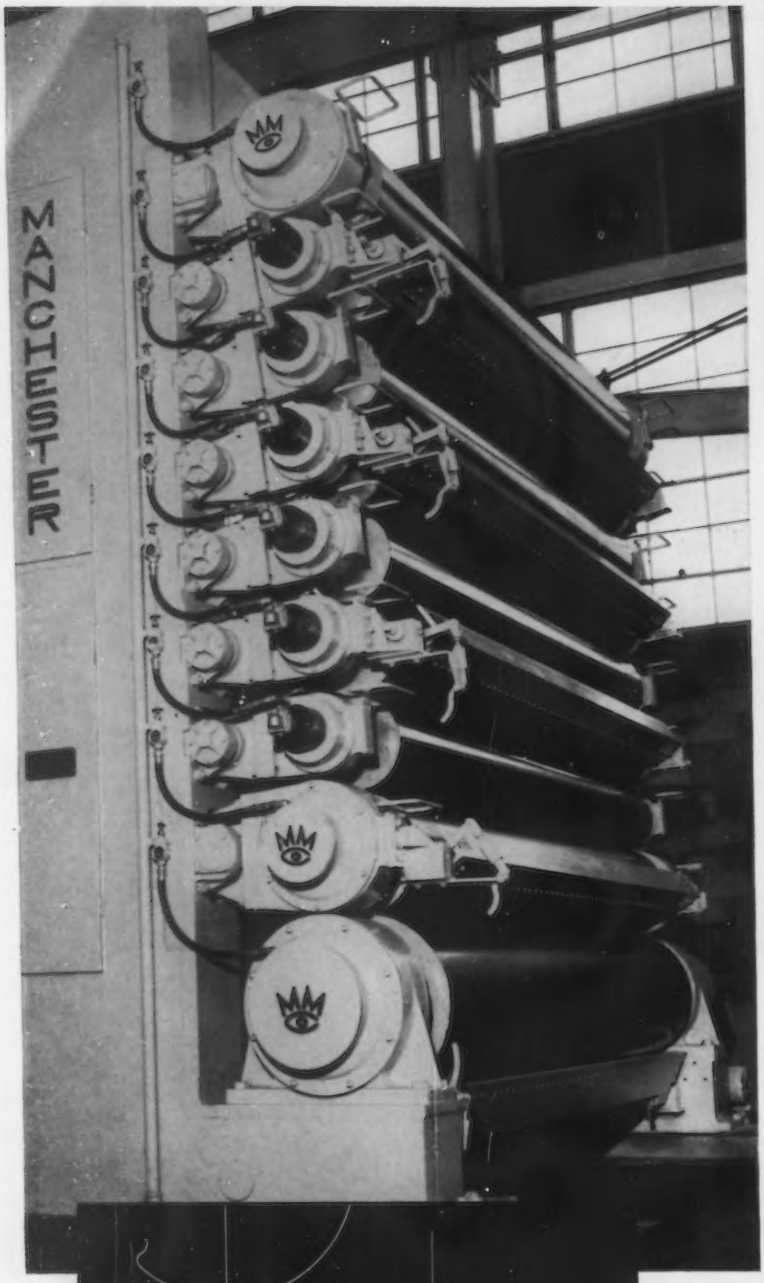
FULL, ROUND FLOW

Distributors in all principal industrial areas

ROCKWOOD SPRINKLER DIVISION
of The Gamewell Company • Subsidiary of E. W. Bliss Company
1010 Harlow Street, Worcester 5, Massachusetts

Please send me complete details on the ROCKWOOD ¾" (Fig. 802) Self-Closing Ball Valve.

Name .....
Title .....
Company .....
Street .....
City ..... *Zone* ..... *State* .....



You can Rely on Lodding Doctors

Many progressive manufacturers of paper mill machinery, like The Manchester Machine Company, rely on Lodding's specialization in doctoring to complement their own manufacturing skills. So, besides serving the mills direct, Lodding acts as sub-contractor to the machine builders.

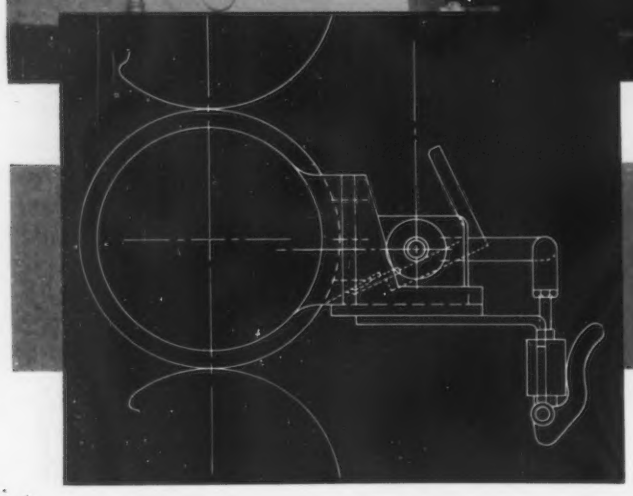
When this happens the engineering staffs of both companies work together for your ultimate benefit.

In sub-contracting, as always, Lodding stands squarely behind every doctor, assuming full responsibility for its workmanship and performance. Each is expressly designed for the exact roll on which it is to be mounted.

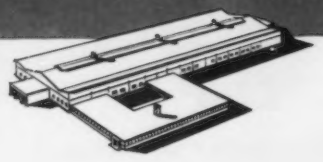
On calender stacks, for example, every doctor is built to fit exactly in position. Allowance is made to compensate for the crown in the roll. Doctors are mounted on the roll bearings. In this way each one always rides with the roll, perfectly aligned, exerting uniform pressure throughout. Doctor backs are provided with the necessary rigidity to prevent sag and vibration.

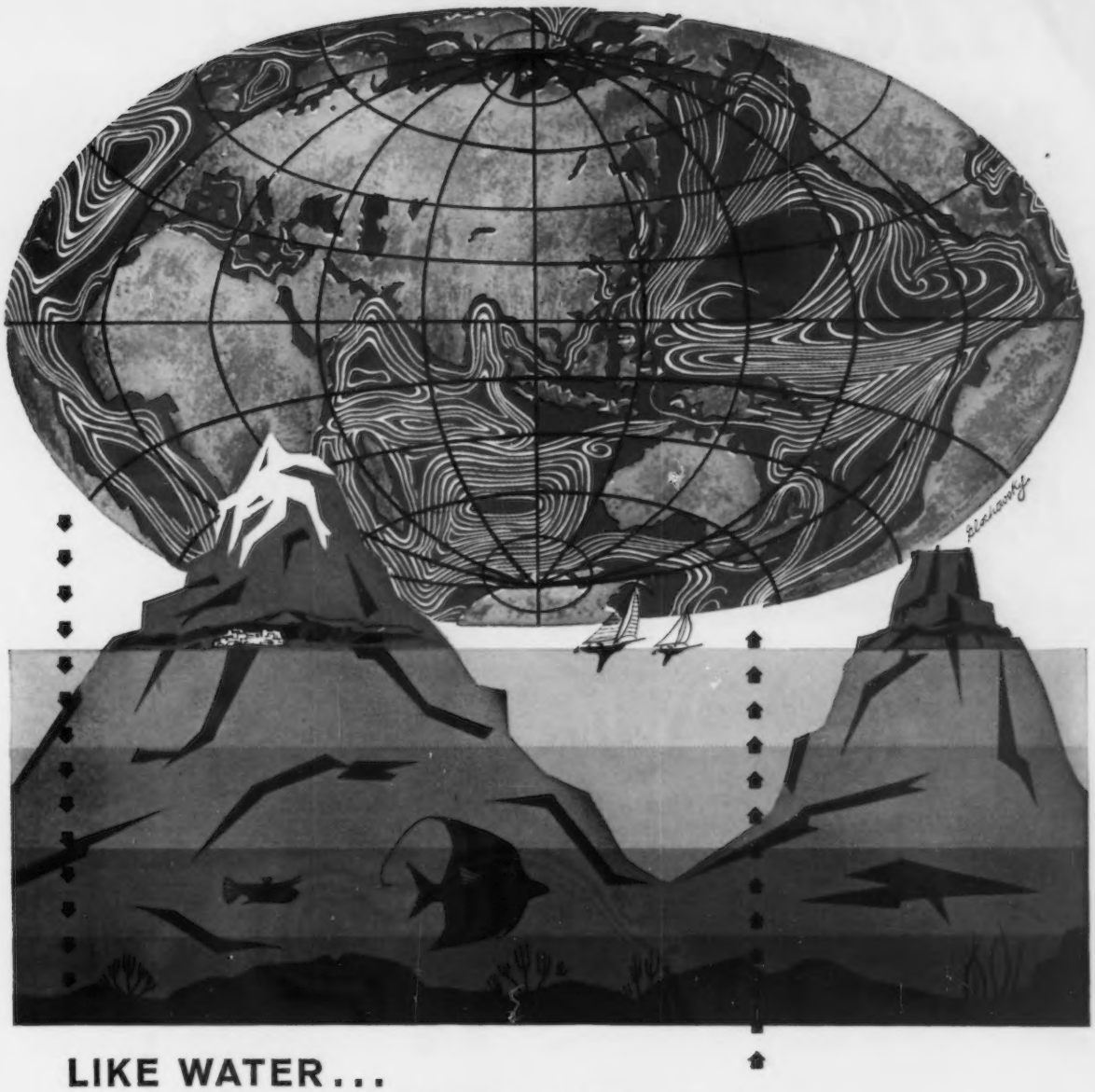
Whether your Lodding Doctors come through a machine builder or direct, you can rely on the kind of performance available only from the world leader in precision doctoring.

Get in touch with your nearest Lodding sales representative for full information.



LODDING
Engineering Corporation
AUBURN, MASSACHUSETTS





LIKE WATER...
coatings of Ethylex® Gums seek their own level

Perfectly smooth sheets are assured when you use Ethylex Gums in your coatings. How? The superior water-retention properties of Ethylex Gums allow time for coatings to level, minimizing surface irregularities and imperfections. The result? A smoother, more uniform surface with high pick values, excellent printability and good varnish holdout.

A.E. STALEY MFG. CO.
Decatur, Illinois

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MICROROK® ROLLS
for wear resistance,
plus excellent release . . . .

MICROROK combines the properties of metal rolls with the resilience and durability of rubber. Extra hard (the hardest rubber cover made 0-1, 1/8 P.), MICROROK Rolls have extremely smooth surfaces and excellent wear characteristics.

MICROROK Rolls are used successfully as: Top Wet Press, Smoothing Press, Size Press — Breaker Stack.

For the MICROROK catalog page containing complete technical information, see your S-W Sales Engineer.

STOWE-WOODWARD, INC.

MICROROK
MICROROK

Ask the man from S-W . . .

. . . about the pressures this roll cover can handle the easy way. **MICROROK** covers offer you something else too. Heat resistance up to 180°F., unusual sheet release, ease of doctoring, and resistance to softening due to oils and chemicals make it a cover you can use interchangeably in a number of positions.

Literally hundreds of **MICROROK** Rolls are proving daily that they are the most versatile hard rolls in use today. This and other factors mean cover longevity which you may not be getting. Ask your S-W man for the facts.

S-W INC.

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HUNTINGTON RUBBER MILLS, INC.
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Port Coquitlam, British Columbia, Canada

Trends

Newsprint Hits Further New High

U.S. consumption of newsprint rose to a new record of 3,631 thousand tons in the first half of 1960, reports the Department of Commerce. During the same time U.S. output of newsprint hit a new high of slightly over 1,000,000 tons. U.S. imports of newsprint for the same period were up 7 per cent and made up 72 per cent of consumption for the period.

Canadian Fine Papers Continue Gains

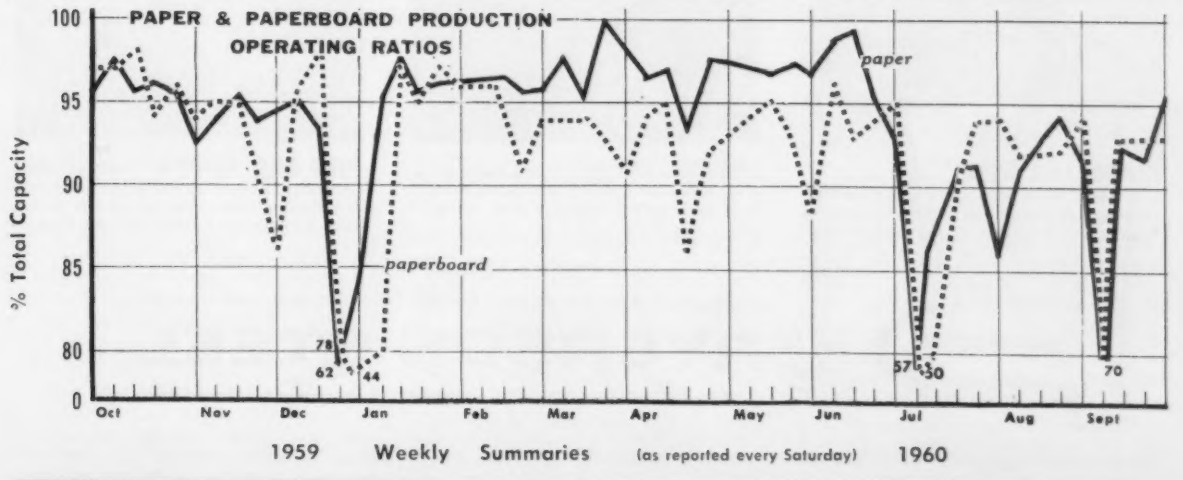
Output of fine papers in Canada during August was 10.5 per cent above August, 1959. For the first eight months the increase was 4.5 per cent above the same period a year ago. Exports were almost 25 per cent above last year.

Industry Investments Grow Slightly Abroad

While foreign investments of the U.S. paper industry increased about 110 per cent between 1950 and 1959, the great bulk of the increase was in Canada. Chief investments abroad were in Latin America which grew from 5 to 50 million dollars and in Europe, up from 5 to 54 million dollars, according to the Survey of Current Business for September, 1960. Eighty-four per cent of the foreign investments of our industry is in Canada.

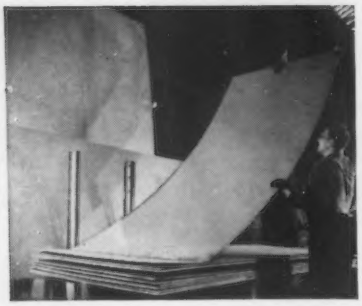
Paper and Board Up After Nine Months

Paper and board production in the first nine months of this year was 2 per cent ahead of the same period last year. Paper was up 4 per cent, paperboard up 1 per cent, and construction paper and board were off 5 per cent. Consumption of paper and board (production plus imports) appears to be up 3 per cent. Pulp output was up about 5 per cent. Pulp imports were off slightly, and pulp exports were up a phenomenal 100 per cent, almost entirely to Europe. Decline in imports of foreign wood pulp has been chiefly due to interest of these producers in other markets. More detailed data on the above comments are provided in an American Paper and Pulp Association report beginning on page 64.



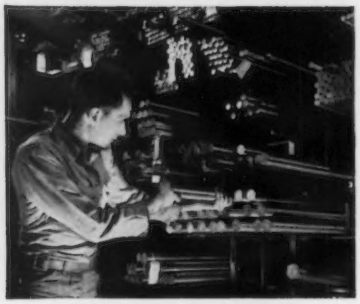
BUYERS' GUIDE . . .

to Ryerson service on stainless



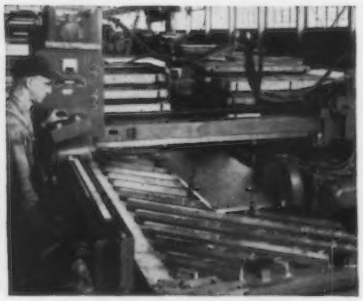
PLATES—Available in 9 analyses including plates to Atomic Energy Commission requirements and to ASTM specifications for code work. Also low carbon types for easy welding.

SHEETS—11 analyses of Allegheny stainless sheets in stock including nickel and straight chrome types. Also extra wide sheets to reduce welding costs, expanded and perforated sheets.

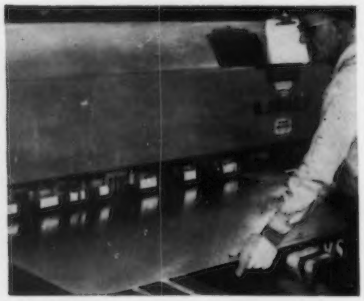


BARS AND ANGLES—Rounds, squares, flat's, hex's and angles in 8 types including free-machining bars with both analysis and mechanical properties controlled.

HELIARC CUTTING available on request. Cleaner, smoother cut edges. Better machining because of minimum contamination and distortion. Less carbide precipitation.



TRUE-SQUARE ABRASIVE CUTS.—Stainless plates to 12' x 25' cut true square on abrasive disc machine. Length and width tolerance plus or minus 1/32".



SHEARING—Accurate cutting of stainless sheets and light plate to the industry's tightest specifications. Shear hold-down clamps padded to protect sheet finish and flatness.

RINGS AND DISCS—Machine cut to your order. This service assures size accuracy, smooth edges, flatness and unaffected corrosion resistance—a lower-cost, ready-to-use product.

HEADS—A.S.M.E. flanged and dished heads in types 304, 304L, 316 and 316L are on hand in large quantities, and in a wide range of gauges and sizes.

PIPE AND TUBING—Light wall, standard and extra heavy pipe, ornamental and regular stainless tubing. Also screwed type and welding fittings and Cooper stainless valves.

METALOGICS
RYERSON PLUS VALUES

STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

RYERSON STEEL

Joseph T. Ryerson & Son, Inc., Member of the INLAND Steel Family

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PAPER TRADE JOURNAL

WEEK OF OCTOBER 17, 1960

$1,250,000 Expansion Set For Pacific Coast Paper Mills

Plans for a $1,250,000 expansion program designed to increase the production of Pacific Coast Paper Mills were outlined by Puget Sound Pulp & Timber Co. Pacific Coast Paper Mills, Bellingham-based producer and marketer of household tissues, is a division of Puget Sound Pulp & Timber Co. F. J Herb is vice president and managing director of the division.

The Pacific Coast Paper Mills' expansion program comprises three phases.

1. Complete modernization of two papermaking machines at a cost of $400,000 to increase production by 6,500 additional tons per year and gain improved quality. This phase is just being completed.

2. Construction of a new converting and storage building. The structure, 90 feet by 315 feet and three stories high, will cost $700,000. The new building will provide necessary added storage and converting space to handle extra tonnage.

3. Installation of $150,000-worth of added converting machinery and equipment in the new structure.

Kimberly-Clark Reported Interested in California Firm

Kimberly-Clark Corp. has applied to the California Commission of Corporation for authorization to offer its shares of stock to stockholders of the Ralph L. Smith Lumber Co. of Anderson, Calif., on an exchange basis.

Announcement of possible acquisition of the California lumber firm by Kimberly-Clark was made by Ralph L. Smith, president, who also mentioned the possibility of a complete pulp and paper mill being built there.

"If the application is approved and our arrangements with Kimberly-Clark are consummated, we are hopeful that we can be doing business together in a matter of months," Mr. Smith said.

Established Smith operations would be continued as a going business under the new setup and the addition of a complete pulp and paper mill adjacent to the present Smith sawmill at Anderson would bring a new industry to the Sacramento Valley, Mr. Smith pointed out.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending October 1, 1960, at 95.3 per cent, compared with 93.6 per cent, revised, for the preceding week. The ratio was 97.4 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending October 1, 1960, at 93 per cent, compared with 93 per cent for the preceding week and 97 per cent for the corresponding week a year ago.

(Detailed Statistics on page 58)

Scott Hourly Employes at Chester Reject Union

Hourly employes of Scott Paper Co. at Chester, Pa., on October 6 rejected representation by the International Brotherhood of Pulp, Sulphite & Paper Mill Workers.

The secret ballot election was conducted under the supervision of Morris Mogerman of the National Labor Relations Board. Approximately 96 per cent of the 1,635 eligible voters participated in the election. The official tally was 977 to 600 against representation by this union.

The outcome of this election marks the third time since 1946 that hourly employees at Chester have voted against union affiliation.

CWP&P To Change Name Of Ahdawagam Division

Consolidated Water Power & Paper Co. is changing the name of its Ahdawagam Division to Paperboard Products Division.

In explaining the name change Groff Collett, general manager of the division, said, "We expect the change to be helpful in bringing greater understanding of our operations. Many people found 'Ahdawagam' difficult to pronounce. We think 'Paperboard Products Division' better describes the paperboard folding cartons, containers, and tubes we make and of course presents no pronunciation problems."

The division has been operating under the title "Ahdawagam Division" since 1948 when Ahdawagam Paper Products Co. was merged with Consolidated. It now employs 250 people.

Ahdawagam is an Indian name meaning two-sided rapids. It was used to describe the rapids in the Wisconsin River here which were divided in two by a great boulder.

KVP Co., Ltd., Completes $2½ Million Expansion

The KVP Co., Ltd., has completed a $2½ million expansion with the installation of a new kraft specialty paper machine. The Espanola, Ont., firm is an associated company of KVP Sutherland Paper Co. The paper machine has a daily capacity of 65 tons of paper, from 15 to 50 lb. basis weight. It can produce machine finish or machine glaze, with or without special surface treatments.

Another new operation is the recovery of kraft mill tall oil.

PICTURED ARE, Left to right: Benton R. Cancell, executive vice president, and William R. Adams, president, St. Regis Paper Co.; and John E. Minch, president, Howard Paper Mills, Inc.; at Howard Paper Co. Division's 50th Anniversary Celebration.

Howard Paper Co. Division Celebrates 50 Years of Papermaking

The Howard Paper Co., division of Howard Paper Mills, Inc., Urbana, Ohio, celebrated its 50th anniversary September 18 with an open house and employe recognition day in the company's picnic area. The mill started production April 10, 1910. Over 650 employes, retirees, and their families attended the event along with officers of Howard and the St. Regis Paper Co. Howard became a St. Regis subsidiary June 29.

Principal speakers were John E. Minch, president of the Howard Paper Mills, and William R. Adams, president of St. Regis.

Thirty-one employes were presented watches for 25 or more years of service and 133 other employes were honored for five to 25 years of service. Twenty-six retirees received special watches in recognition of long employment.

Benton R. Cancell, executive vice president of St. Regis, attended the open house along with the following Howard Paper Mills, Inc., executives: K. P. Geohegan, vice president and technical director; J. H. Tate, vice president, manufacturing and engineering; B. W. Kimmel, controller; Harry A. Legge, executive assistant; H. H. Wegman, director of industrial and public relations; and C. M. Shockey, mill manager of the Urbana operations.

The Urbana Daily Citizen ran a special eight-page tabloid section in its regular September 16 edition in recognition of the event.

U.S. and Canada Paper Executives To Attend U.N. Conference in Tokyo

On October 17, 1960, seven executives of the paper industry of the United States and Canada are to meet in Tokyo, Japan, where they will attend a United Nations Conference on Pulp and Paper Development in Asia and the Far East.

Officially representing the American Paper and Pulp Ass'n. will be Robert E. O'Connor, executive secretary. Also from the United States will be H. E. Whitaker, chairman of the board, The Mead Corp., and president of the APPA; D. S. Leslie, president, Hammermill Paper Co.; L. P. Turcotte, president, Puget Sound Pulp and Timber Co.; G. J. Ticoulat, senior vice president, Crown Zellerbach Corp.; and J. L. Ritchie, executive secretary, U. S. Pulp Producers Ass'n.

Representing the Canadian Pulp and Paper Ass'n. will be Frank L. Mitchell, general manager of that association.

These men will be attending the two-week Tokyo Conference, October 17-31, on invitation from the Economic Commission for Asia and the Far East, a division of the United Nations Food and Agriculture Organization.

The purpose of the meeting is to spread useful economic and technical information among governments of Asia and the Far East. The conference will explore the suitability of the manufacture of different types of pulp and paper from temperate and tropical woods growing in the region and from other local fiber materials, such as bamboo.

The representatives from Canada and the United States will present the views of their industry in relation to the discussions to be held at the conference.

Canadian Fine Paper Figures Continue Ahead

Canadian fine paper production and shipments in August and the first eight months continued ahead of the year ago figures.

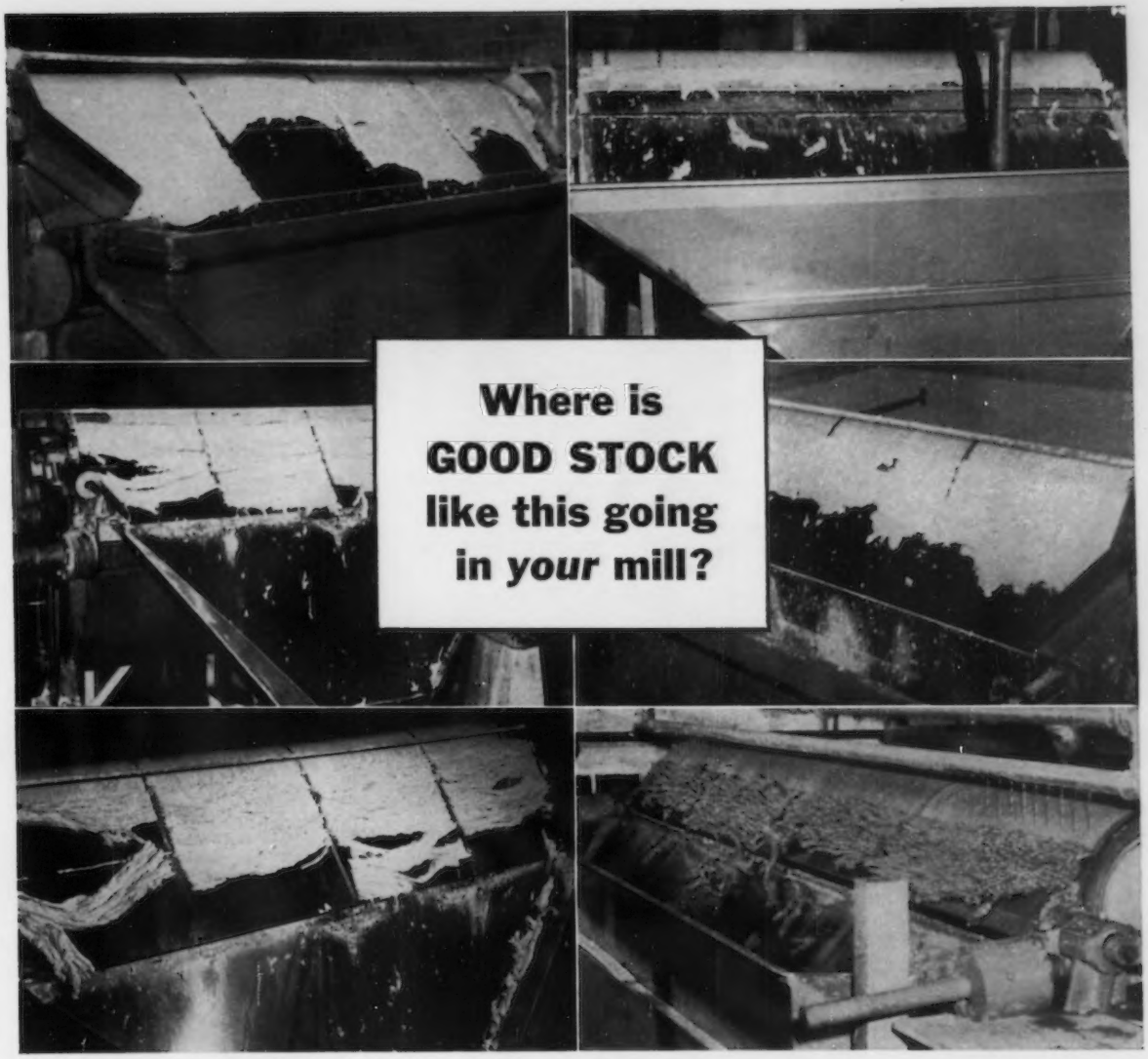
Output in August was 24,388 tons, an increase of 10.5 per cent from the 22,061 tons produced in August last year. Production in the first eight months was 194,736 tons, up 4.5 per cent from the year ago total of 186,385 tons.

Fine paper shipments in August totalled 23,460 tons, a gain of 7.7 per cent from 21,775 tons shipped in August 1959. Included in the total were exports of 2,079 tons this year as compared with 1,618 tons last year. Shipments to the end of August were up 7.3 per cent at 194,800 tons from the 181,525 tons shipped in the same period last year. Exports included in the eight month total were 14,175 tons this year as against 11,365 tons in 1959.

Coated paper production to the end of August was 23,471 tons and shipments were 23,312 tons. In the first eight months last year, production was 22,440 tons and shipments were 22,061 tons.

HIGH SPEED HEADBOX REPRINTS AVAILABLE

A reprint containing the three articles on "New Developments in Paper Machine Headbox Design and Equipment" which recently appeared in this magazine is available at $1.00 for single copies, reduced price for quantities. Unauthorized reproduction of Paper Trade Journal articles, even for internal use only, is an infringement of our copyright.



DOWN THE DRAIN ?

— or through a Bird Save-All and back into the machine chest to be turned into a profit?

The whole idea back of the Bird Save-All — and the reason why more than two million pounds of paper are saved by Bird Save-Alls every day — is that it recovers the stock at lowest net cost per ton.

Ask us to work out the figures on net return for you.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

PAPER PEOPLE

F. J. Keating

D. A. Cumfer

United Container Names Vice President

Lester Kardon, president of United Container Co., the firm which recently acquired Bicking Paper Mills, Downingtown, Pa., has announced the appointment of Frank J. Keating as vice president-mills operation of United Container. Prior to this appointment, Mr. Keating was assistant to the president of United Container. He joined the company in the shipping department in 1946 and has worked in a variety of capacities for the firm over the past 14 years. As vice president-mills operation, Mr. Keating will continue his present duties at United Container with the additional responsibilities of United Container's mills, the newly acquired Bicking Paper Mills in Downingtown and the affiliated Daring Paper Co., Bridgeport, Pa.

Mr. Kardon also announced that Donald A. Cumfer has been named general manager-mills operation for United Container. A chemical engineering graduate of Vanderbilt University, Mr. Cumfer was with the Mead Board Corp. as assistant director of the product planning division until he joined Kardon Enterprises early this year. He will also work with both Bicking and Daring.

Dayton Paper Stock Names Johnson President

W. R. Johnson of Middletown has been selected as president of the Dayton Paper Stock Co., a subsidiary of the Diamond National Corp's. Gardner division in Middletown. He will maintain offices in both Dayton and Middletown.

Mr. Johnson, who will be responsible for the purchase of all waste paper for the Gardner division in addition to his new executive duties, succeeds H. K. Roxborough, who is being transferred to Diamond National's New York offices in a sales management capacity.

Mr. Roxborough joined Gardner in 1949 as chief industrial engineer and was named assistant director of purchasing in 1954.

Chapman Leaves K-C Post To Join Dunn Paper

Gerard Chapman has resigned from the Research Department of the Peter J. Schweitzer Division of Kimberly Clark Corp. in Lee, Mass. He has accepted the post of technical director at the Dunn Paper Co., Port Huron, Mich.

Mr. Chapman has been with the Schweitzer firm for four years.

Gilman Paper Announces Sales Staff Changes

Dean Wellington, general sales manager for Gilman Paper Co., manufacturer and converter, with plants at St. Mary, Ga., and Gilman, Vt., announces that Glenn S. Booton, has been added to the sales staff of the Specialty Papers Division, at the New York office, 630 5th Avenue.

Leonard Klanit, who headed Gilman's Sales-Service Department, has been promoted to the new post of administrative assistant to Robert Bringman, sales manager for the Specialty Papers Division.

Mr. Klanit's place has been filled by Stephen Orseck, who came to Gilman from the production and sales department of the New York and Pennsylvania Co. Mr. Orseck will be responsible to William Peist, sales manager for Gilman's Standard Products Division.

Champion Adds Chable To N. Y. Sales Staff

The addition of William Chable to the sales staff of The Champion Paper and Fibre Co.'s New York district sales office has been announced. Mr. Chable joined Champion's sales organization in 1955. He has been with Champion Paper Corp., S.A., export sales subsidiary of the parent company, since 1956, also in New York.

Walter Evans, with Champion's New York sales office for the past two years, has been promoted to market sales manager, merchant papers, at the firm's general offices, Hamilton, Ohio.

Gunnar Brondmo

Industrial Engineer Joins Keyes Fibre

Gunnar Brondmo, a native of Norway and graduate of Massachusetts Institute of Technology, has joined Keyes Fibre Co., Waterville, Me., as an industrial engineer.

Mr. Brondmo was born in Norway 27 years ago and attended schools there including two years at Schou's Institute of Technology after which he came to the United States and studied for two years at MIT, being graduated in 1957. His last position was with the Scott Paper Co.

Thomas B. McCabe

S.I.R. Names Industrialist of the Year

Thomas B. McCabe, president of Scott Paper Co., Chester, Pa., has been selected as the Industrialist of the Year for 1960 by the Society of Industrial Relations, George M. Humphrey, Cleveland, chairman of the Award Board and former Secretary of the Treasury in the Eisenhower administration, reports.

Hinde and Dauch Fills Newly Created Post

Hinde and Dauch Ltd., announces the appointment of John D. Pawling, as manager of manufacturing and engineering services. Mr. Pawling, a graduate in mechanical engineering from the University of Toronto, comes to this newly created position from Price, Waterhouse & Co. where he was director of manufacturing services in the Management Consulting Division.

Riegel Paper Appoints Director of Marketing

Robert R. Thek has been appointed director of marketing research of Riegel Paper Corp.

Mr. Thek held a similar position with KVP-Sutherland Paper Co. for three years prior to joining Riegel where he organized market research programs for flexible packaging materials and folding cartons. He will co-ordinate marketing for all branches of Riegel's sales operations.

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Mac Sim Bar Chooses General Superintendent

W. E. Hurlbut, president of Mac Sim Bar Paper Products Co., Otsego, Mich., has announced the appointment of Karl F. Halladin as general superintendent, effective October 1. Mr. Halladin replaces Henry A. Bongers who resigned effective September 30.

Mr. Halladin, a graduate of the University of Minnesota, has been assistant superintendent of Waldorf Paper Products Co., St. Paul Minn.

OBITUARIES

L. Marvin Warrick, divisional sales manager for Cameron Machine Co., Dover, N. J., died September 25 in Menasha, Wis., following a short illness.

Mr. Warrick had been associated with Cameron for over 18 years. He joined that company as a sales representative and later was named a divisional sales manager.

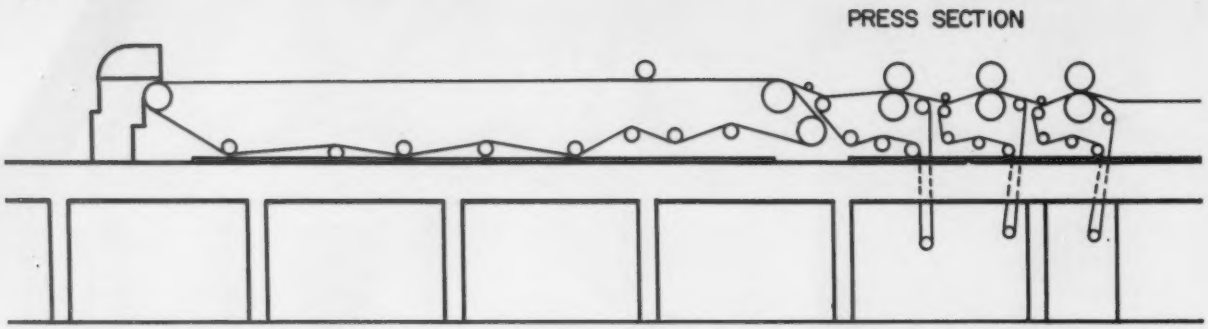
George A. LaHusen, 48, general safety supervisor for Crown Zellerbach Corp., drowned October 5 while fishing in the San Juan Islands near his summer home at Roche Harbor, Wash.

Mr. LaHusen joined Crown Zellerbach 27 years ago at the company's San Francisco headquarters office. In 1956, he became general safety supervisor for the corporation's U. S. operations with headquarters in Portland.

Robert D. Hull, 63, founder and chairman of the Hull Paper Co., Dayton, Ohio, died October 4 at his home after an illness of two months. Mr. Hull was a member of the National Paper Trade Association.

William H. Mordo, 46, technical service manager, and **N. Warren Hess,** 38, senior chemist, both of Stowe-Woodward, Inc., Upper Newton Falls, Mass., lost their lives October 4 when an Electra jet-prop crashed into Boston Harbor. The men were on their way to the firm's Griffith, Ga., plant.

Mortimer G. Jaffee, 48, vice president of the Wright Co., Inc., newsprint sales organization at 425 Park Ave., New York City, died at his home in Westville, N. Y. on October 6 after a long illness.



New Marathon Board Machine Features Calender with Instant Crown Control

Aiming for the ultimate in high quality board production, significant features of this machine include three on-machine coaters and a unique calender stack.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

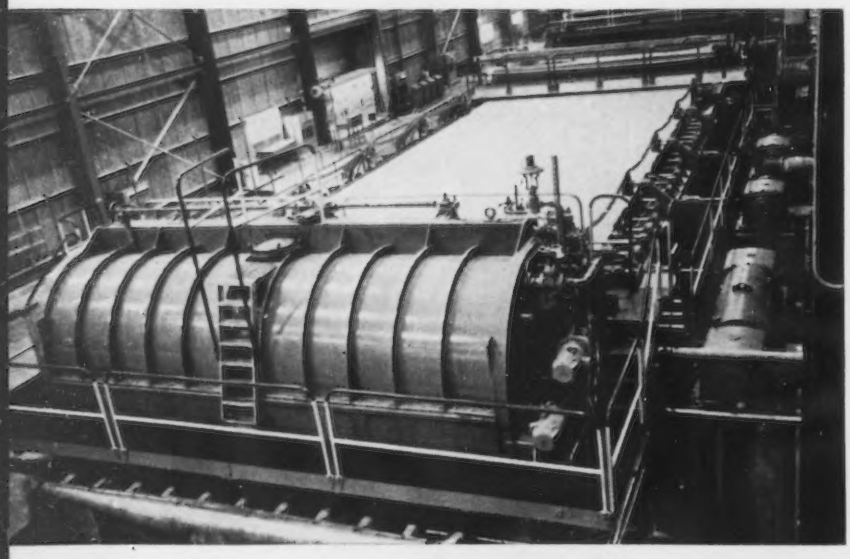
A significant new board machine with a number of interesting innovations was just brought into production last month by Marathon Southern Corp. at Naheola, Ala. Designed to produce the ultimate in high quality board, the new No. 3 Black-Clawson machine was part of a 10 million dollar expansion program which also included the installation of stock preparation equipment and a unique centralized additive and coating preparation area as well as increased pulp capacity.

The existing Naheola plant began operations in 1958 with a bleached kraft pulp mill, Sandy Hill pulp machine and two Beloit paper machines, one a 192-inch tissue machine, the other a 192-inch bleached kraft paper machine. Tissue converting operations were also begun at this time.

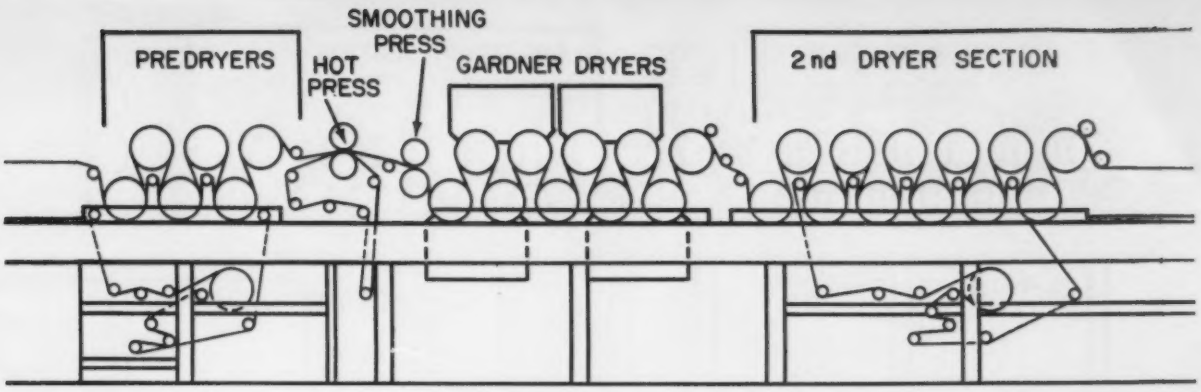
No. 3, the new Black-Clawson board machine with a wire width of 236 inches and design capacity of 345 tons per day, is of the very latest design and has a number of extremely interesting features.

• Perhaps of most significance to the paper industry is the use of B-C's Accra Nip king roll bending device to provide instantaneous crown control. Although the machine has not been in operation long enough to thoroughly evaluate this device, Marathon's back tenders have already become aware of its potentialities and use it to control crown for the production of uniform rolls.

• Another eye catching feature is that three Rice Barton on-machine trailing blade coaters have been installed to provide the ultimate in



New 236-inch machine is designed to produce high quality board at the rate of 345 tons per day.



board appearance and printing surface.

- The machine's drying capacity is boosted by the use of four Gardner dryers covering eight rolls. The first dryer section is composed of these dryers and each coater is followed by a Gardner dryer.
- The press arrangement is unusual with two suction presses and a plain press preceding a large predryer section. A hot press and smoothing press follow this section.
- An unusually long broke conveyor is provided below the machine. It is 165 feet in length.
- Other special features of the project include the extensive use of magnetic flowmeters for measuring stock and additive flow, an unusually large high density broke storage tank, and provision for pre-refining separately each type of pulp supplied to the machine in order to obtain ultimate characteristics.

UNIQUE ACCRA NIP CALENDER STACK

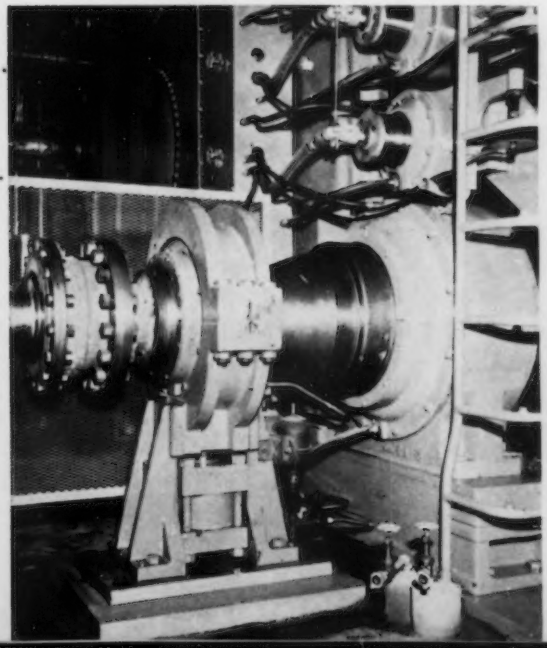
The dry calender stack of Marathon's new board machine is equipped with the first commercial installation of Black-Clawson's unique new development for maintaining a uniform nip at the bottom roll, under varying nip pressure loadings, without regrinding the bottom roll crown. Basically, the calender is a standard open side design with two important additional features: a bottom roll bending device and bearing weight compensators.

The bottom roll journals are extended beyond the main roll bearings on the tending and drive sides, and are loaded through bearings connected to floor mounted hydraulic cylinders. The cylinders are individually controlled, and permit controlled bending of the bottom roll to impart the most effective crown for a given operating condition. Crown corrections can be made from a control console while the calender is operating.

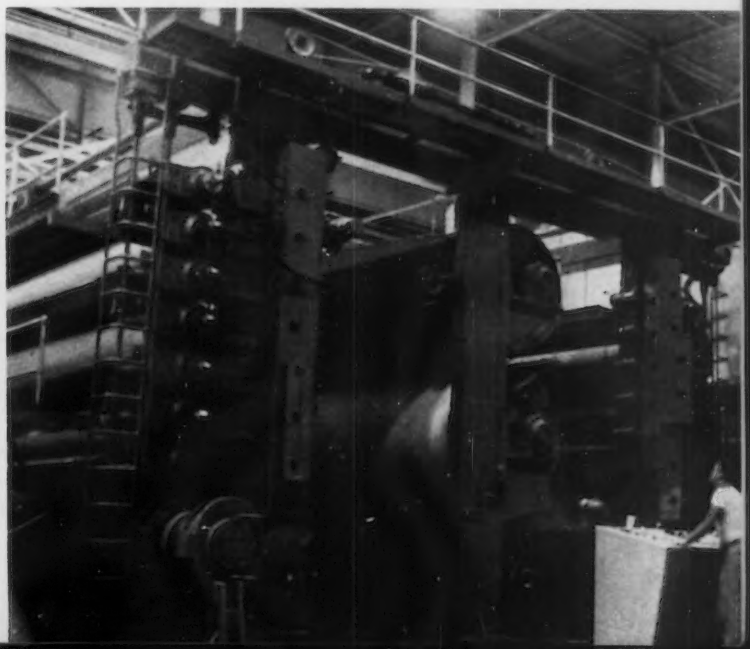
All intermediate rolls are ground straight, and compensators are mounted on their bearings to counterbalance the edge pinching effect of the bearing housings, doctors, etc. As the nip at the bottom roll is to be maintained uniform, all nips between the intermediate rolls will be uniform.

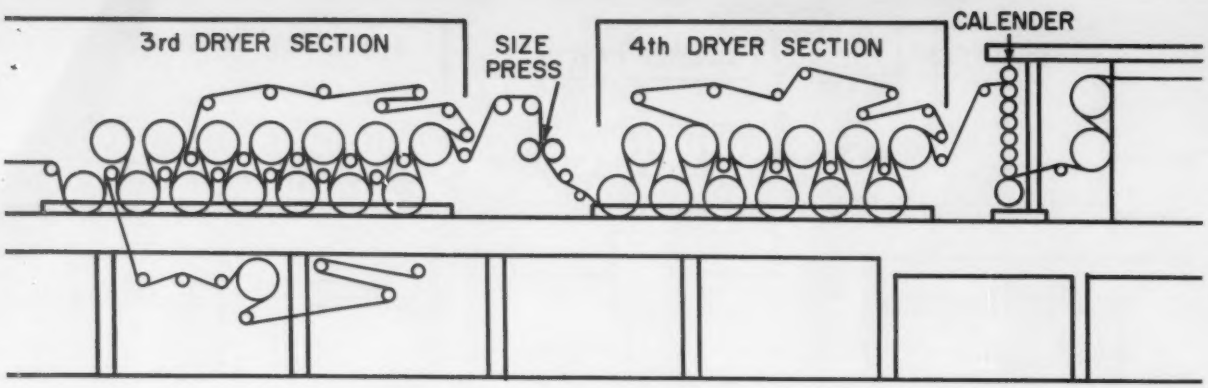
No. 3's production aims center around such items as food board, milk bottle stock and cup stock for use within the parent company, American Can. However, the machine is capable of making just about any product a customer might order, as long as it is within the basis

Closeup of calender's drive side shows Accra-Nip load bearings mounted outside main roll bearings.



Accra-Nip equipment on eight roll dry calender stack permits instantaneous crown control. First, or wet stack, has four water boxes.





weight range. Startup of the new board machine was extremely smooth and any difficulties quickly worked out. One of the foremen with wide experience claims, "This is one of the nicest running machines that I've ever worked."

Engineering, including consulting and construction work was done by Rust Engineering Co. working in close cooperation with Marathon's Central Engineering Department.

The board mill has four shift foremen (three in charge of the machine and one in charge of stock preparation) and one coating superintendent. Ben Guenther is board mill superintendent, and John Fulkerson his assistant. In charge of overall operations is Marathon Southern's plant manager John Spalding. Assistant plant manager is George Brabender.

No Moisture Problem

A new machine room was constructed as part of the expansion program to house the new board machine, stock preparation area, roll wrapping and storage. The building has a concrete basement and operating floor with concrete frame up to the operating floor. Above this point it is steel framed. The mezzanine has a steel frame with concrete floor. The roof is of pre-cast concrete plus built up tar and gravel. Side walls are of Transite, aluminum and concrete block.

Within the machine room a duct is located near the ceiling above the back side of the machine. From the duct, air is swept across the ceiling over about half the machine and exhaust fans on the front side carry away excess moisture and heat.

Stock Preparation

Pulp is supplied to No. 3 machine from the pulp mill's high density storage chests and from two existing pulpers which operate on baled pulp. From these three sources the pulp goes to separate dump chests for pine, gum and the pulper. Here consistency is 4½ per cent. Pulp is pumped from the chests to three Claflin refiners which treat the stock separately, or if desired these refiners can be by-passed. The refiners as well as the by-pass discharge into a proportioner chest, and stock is pumped from this point to Nos. 4 and 5 Claflin refiners which operate in parallel and then to a small pre-mix tank where most of the stock additives and broke are brought into the system. Stock flows from this tank to the machine chest which holds five and a half tons at 3.75 per cent.

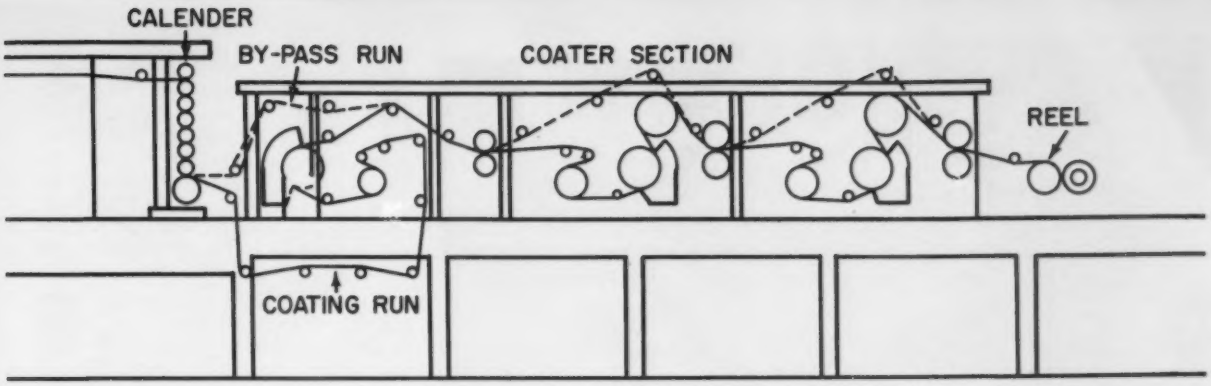
Stock is pumped from the machine chest to two E. D. Jones jordans operating in series. The stock goes next to a stuff box and then is pumped to a battery of Bauer Centricleaners consisting of 18 primary, 3 secondary and one tertiary units, provided with a vacuum reject system. Accepted stock from the primaries is pumped to Selectifier screens by the ACAP fan pump and screen accepts go to the headbox of No. 3 machine. There are six primary and one secondary Selectifier screens with a test size Jonsson screen being used as a tertiary.

New Machine Has Five Presses

The new No. 3 board machine was built by Black-Clawson and is designed for the production of 345 tons per day of paperboard in the range of 65-375 pounds/3000 square feet. It is a Hydroflyte cantilever fourdrinier designed for quick wire change and has a Hydro-Flow 240 pressure headbox. All wire changing units are hydraulically operated. Speed range is 150-1000 f.p.m. Wire width is 236 inches.

No. 3 is equipped with four Vibro-Flyte shake units, 29 rubber covered table rolls, and 12 suction boxes. The breast roll is 20 inches diameter by 240 inches face and is frame mounted for full cantilevering. The dandy roll is 20 inches diameter by 240 inches face, and the suction couch roll is 44 inches diameter by 240 inches face. The dandy roll (stand and drive) is a complete unit that can be lifted on or off the machine for wire change.

Stock preparation area just ahead of board machine includes pair of jordans at left, pair of Claflin refiners at right.



The wire is tensioned with a mechanical stretcher and hydraulic tension roll. The machine is equipped with a B-C horizontal pneumatic wire guide. The drive consists of the mechanically driven wire turning roll with helper drives on the couch and first three wire return rolls.

There are actually five presses on the machine, three preceding a pre-dryer section and two following. First is a straight-through suction press with a suction bottom roll 40½ inches in diameter by 238 inches face and a plain top roll 35 inches in diameter by 240 inches face. The second is a suction press, the same in dimensions as the first. The third press is a plain, straight through type having a 35 in. top and 36 in. dia. bottom roll, both of 240 in. face.

These first three presses are followed by a double deck-pre-dryer section containing six paper dryers and one felt dryer. These dryers are 60 inches in diameter by 234 inches face, as are the rest of the dryer rolls. The section is covered by a conventional open hood.

The hot, or fourth, press which follows has a plain bottom roll 36 inches in diameter and a plain top roll of 35 inches diameter, both of crownless construction and with 240 inch faces. The smoothing press has plain top and bottom rolls of 34 inches diameter and 234 inches face.

Dryer Section

There are four dryer sections other than the pre-dryers. The first section contains ten paper dryers in a double deck. Four of the top dryers and four bottom dryers are Gardner type with the close-fitting, high velocity Gardner hoods mounted in pairs above and below the section.

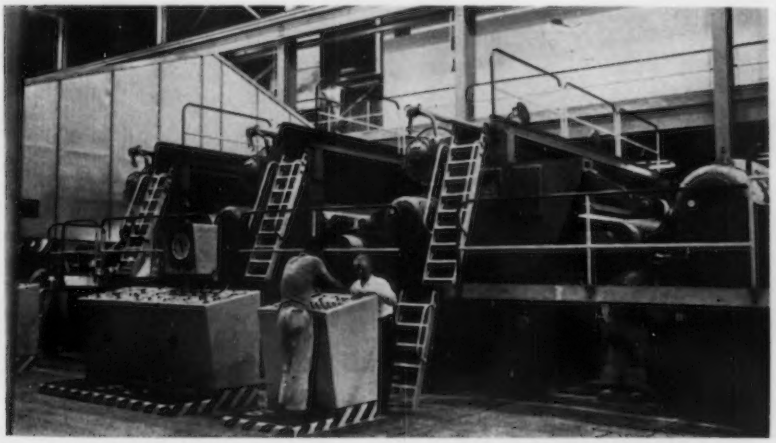
There are 12 paper dryers and one felt dryer in the second section; 14 paper dryers and one felt dryer in the third; and 12 paper dryers in the fourth section. The dryers are designed for 125 p.s.i. maximum steam pressure. The second and third sections are covered by an unusual new hood. The back side of the dryer sections is totally enclosed by the hood while the front is open. A curtain of high velocity air is projected upwards from a narrow duct near floor level running the length of the two sections. The air curtain is designed to prevent the outward flow of air.

Located between the third and fourth sections is a horizontal size press. The fourth dryer section, also covered by an air curtain hood, is followed by two eight roll, open type calender stacks. There are two dryer rolls between the stacks with space provided for two more dryers. The first of the two stacks is equipped with four water boxes, two on each side. The dry stack has an Accra Nip king roll bending device for instantaneous crown control. The wet stack, although not presently equipped with the bending device has extended king roll journals for possible installation of the device later on.

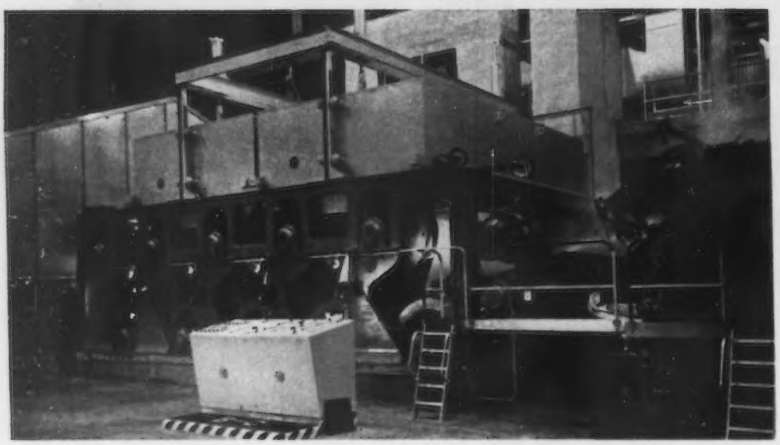
Next on the machine are three Rice Barton trailing blade coaters. Provision has been made to go through the coaters or by-pass them. Each trailing blade coater is followed by a Gardner dryer, and in the case of the second and third coaters, by a plain dryer as well.

The sheet comes off the dryers onto a B-C Autoflyte reel with a 42-inch diameter drum, capable of making a maximum diameter roll of 96 inches. Roll storage space is provided directly behind the reel, between it and the winders. The reels of paper are moved to the unwind stand by an overhead crane. The Rollflyte slitter-winder has two 22 inch diameter drums and operates up to 3000 f.p.m. The winder trims 216 inches and has an 84 inch diameter roll capacity.

Total length of No. 3 machine from headbox to winder drums is about 530 feet. The machine is driven through cone pulleys from a line shaft driven by a Westinghouse turbine. The drive belts of plastic core, leather face type are moved on the pulleys by motorized belt shifters. These are equipped with counters so that a number denoting belt position registers on the console panel on the front side of the machine. By keeping a record of the counter numbers for each grade, the belt position can be set and maintained for proper draw control on subsequent runs of the grade, without guesswork or experimentation.



Two suction presses and plain press precede pre-dryer section. Ben Guenther, board mill superintendent, right, checks operation with machine tender.



Gardner dryers are mounted in pairs. Hoods for bottom dryers are out of sight beneath the dryer rolls. Hot press and smoothing press precede this section.

Broke System

Below No. 3 board machine an unusually long (165 feet) broke conveyor runs from the end of the fourth dryer section to a large broke pulper beneath the winder capable of handling full machine production. Broke from the pulper is pumped to the couch pit which also handles broke from all other points. This includes excess wire pit water; trim showers, wetting and knock off; wet broke; sheet showers, wetting and knock off; wire showers; couch roll shower; tertiary screen accepts, stuff box overflow; dilution water; new stock sweetener; broke sweetener; vacuum pump; sump pump; and consistency regulator return.

A Kalle consistency regulator is provided at the couch pit, and stock is pumped from here to a Dorr-Oliver saveall. From the saveall the stock is pumped to an unusually large, 100 ton capacity high density storage tank where consistency is about 10 per cent. Stock is pumped as required from the 30 foot diameter by 60 foot high tank to a broke chest with a capacity of four tons at 4½ per cent consistency. Stock from the broke system is returned to the machine through a breaker trap to the pre-mix tank.

Instrumentation

One of the first impressions of a visitor on seeing Marathon's new board machine is of a wide use of instrumentation. And this is true to some extent; No. 3 machine does have a high degree of automatic and remote controls. Yet expenditures for instrumentation amounted to only 4-5 per cent of the total cost of the project—no more than average. One engineer noted that this 5 per cent may well have been the most worthwhile expenditure made in the installation.

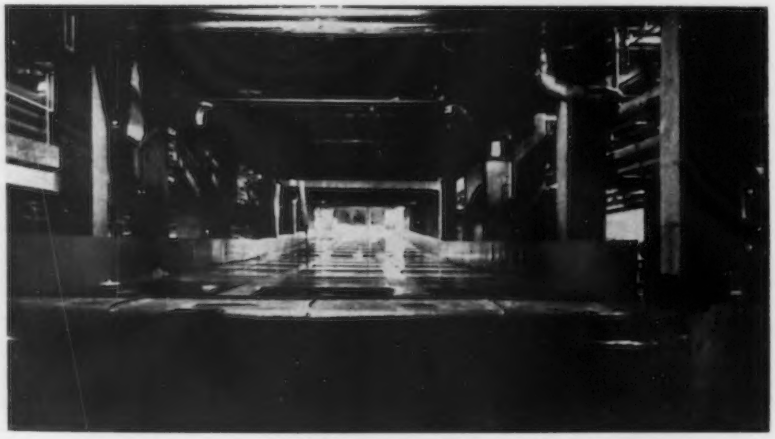
One noteworthy feature is that all instruments are in central panels and 90 per cent are in graphic panels. Further, all machine consoles (unlike most machines) were laid out in cooperation with Marathon's engineering staff, and various control consoles such as for size press and coating include material handling controls. In the board mill all stock as well as broke is proportioned to the machine by magnetic flow meters and control valves, and initial cost is said to be one-half that for conventional equipment for a similar purpose. Close control over consistency is maintained through the use of Fischer and Porter consistency regulators at several points in the stock preparation system.

In the new mill the main stock flow meters are used as master meters and the supply of eleven different additives are proportioned to the total flow of stock and broke by eleven separate magnetic flow meters, each maintaining the supply of its additive at the set rate called for by specifications. Variations in stock flow are accompanied by proportional variations in additive flows. Shutting off the stock flow automatically shuts off the additive flow. Starting the stock flow also starts the additive flow without necessitating any readjustments.

Additive and Coating Preparation

A highly interesting phase of Marathon's expansion program was the installation of a centralized additive and coating preparation area. This centralized preparation area embodies a number of the latest techniques to solve the problems of unloading, warehousing, trucking, handling, bag dumping and mixing various materials. It has relieved the board mill of crowded areas, unnecessary traffic, spillage mess and dusting in the area of machine operations.

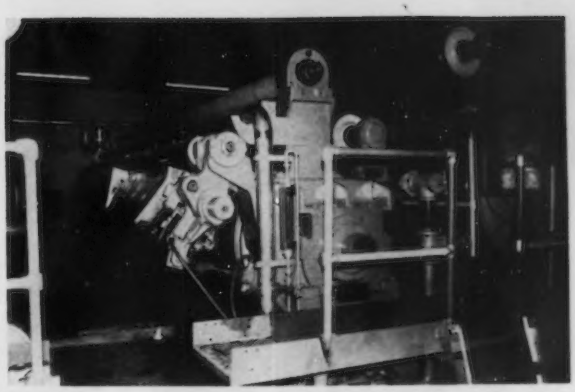
The new preparation building which adjoins the machine room has a two story coating preparation area 83 feet by 44 feet with a single story extension 154 feet long by 65 feet wide. The single story building has a 15 foot center aisle running the length of the building with a 20 foot bay on each side having 11½ feet high platforms carrying the mixing



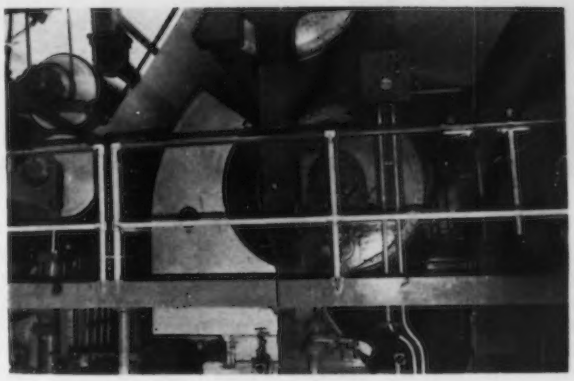
Conveyor beneath No. 3 machine is 165 feet long, carries broke to Jones pulper capable of handling full machine production.

equipment that can be serviced by lift trucks from the center aisle. Operating panels are centrally located on both platforms, facing each other with a joining catwalk over the aisle to centralize the operating area. There are trackage and unloading facilities on both sides of the building. Five 4500 cubic foot storage silos have replaced the necessity for large warehousing areas and enabled bulk handling and automatic weighing direct to mixing facilities, thus making more efficient use of mixing equipment. Automated procedures are set up and controlled through the use of graphic panels.

Although some additives, such as alum, wet strength resin and clay slurry are received in liquid bulk and used as received, most additives are batch prepared in agitated stainless steel tanks and stored in somewhat larger capacity holdup tanks. All additive slurries are pumped with centrifugal pumps equipped with centrifugal seals so that no shaft leakage occurs while the pump is in operation.



Closeup of first of three Rice Barton trailing blade coaters. Coater was being bypassed at time this shot was taken.



Each coater is followed by an individual Gardner dryer as shown here.

Circulating Loops

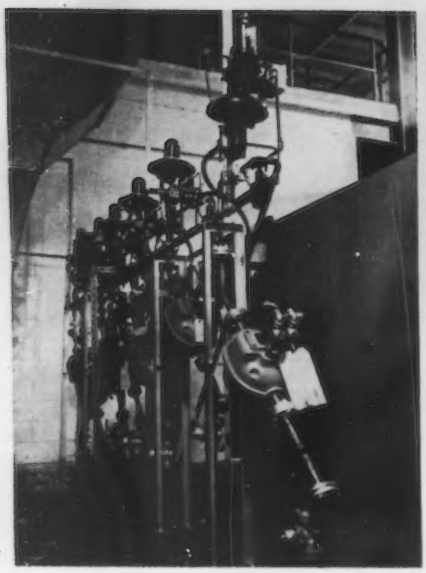
With the exception of rosin size, all additives are supplied to the machine by circulating loops through which adequate flow of a uniform product can be maintained without plugging. This flow rate is maintained at all times so that the additive is supplied as a service similar to water or steam; the take off at the machine is made as needed by operations. In many cases the loop is extended to supply both board and paper machines and can supply future board or paper machines by further extending the circulating loop. To provide sufficient pressure at the machines the return line is sometimes smaller than the supply or is throttled by a "V" port valve at the return to the holdup tank.

The product is screened on entering the holdup tank from the source of supply from the circulating loop. Plugged screens overflow into the holdup tank and will not retard flow. Screens can be checked, removed and cleaned as needed by operators. Take-offs from the circulating loops are made through short self draining lines with flow measured and controlled by magnetic flow meters and control valves.

Additives for No. 3 machine include alum, clay, rosin size, starch, titanium dioxide, wet strength resin, dyes, pitch dispersant, defoamer, and lime slurry. Coating and sizing materials include stabilizers, latex, clay, calcium carbonate, and starch. All these materials are han-

Additives are pumped continuously through circulating loops by A-C Equiseal pumps. There is no shaft leakage while the pump is in operation.

Bulk carts which are loaded with coating solution in centralized preparation area, then moved to machine area to supply coating loop system. Note quick couplings by which flexible hoses are attached.



Circulating tanks and Sweco screens supplying one of the trailing blade coaters are located in basement below the machine.

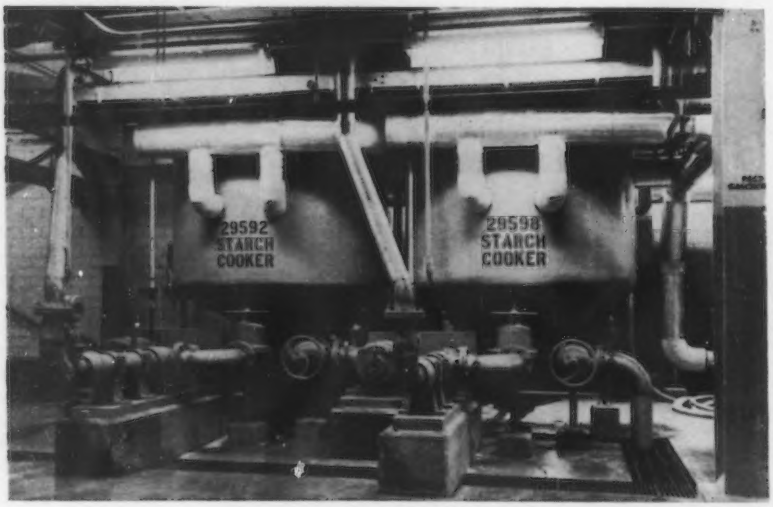
Lineup of magnetic flow meters used to proportion additive flow from circulating loops in relation to total stock flow.

dled through carefully designed systems to overcome characteristic problems.

Alum, received by tank car in 49 per cent solution, is delivered to a storage tank by air padding the tank car. From the storage tank it is pumped by a 20 g.p.m. pump through a circulating loop system to the area of the board machine where the alum is taken off as required into a funnel where it can be diluted and from which it is fed to the fan pump suction. Wet strength resin is handled in a similar system.

Internal clay, received in 10,000 gallon tank cars in 65 per cent slurry form is removed by a 100 g.p.m. Moyno pump to a storage chest, then is pumped to a circulating loop of 800 feet total length from which it is taken off as needed and fed to the pre-mix tank. The system is run continuously and has a three inch supply line and 2 inch return line. All clay slurry lines can be flushed with water or steam. Takeoff lines are designed to be self draining.

Rosin size is unloaded from tank cars by a Viking constant displacement pump through a 400 foot long line to a 16,000 gallon storage tank. The tank cars are heated by steam during unloading and a steam line is clamped to the unloading line throughout its full length. The two lines are insulated as a unit. From storage the rosin goes through a heater and emulsifier to a 9000 gallon tank where it is stored as a four per cent emulsion. It it pumped from here to the stuff box for No. 3 machine. Rosin size is the only additive with which a circulating loop is not used.



Starch cookers, said to be work horses of the size press operation. Starch is pumped from here to holdup tank, then to circulating tanks.

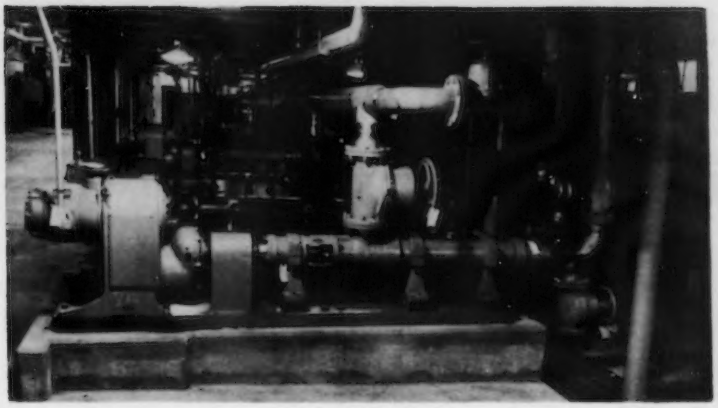
Bulk Materials

Bulk materials which are unloaded into 4500 cubic foot silos include starch for internal use and for the size press, calcium carbonate and two grades of clay. The railroad cars in which these materials are received discharge into a hopper below, then are moved by screw conveyor to a star valve from which the material is pneumatically conveyed to any one of the five silos. A portable vibrator and air lance are used in unloading.

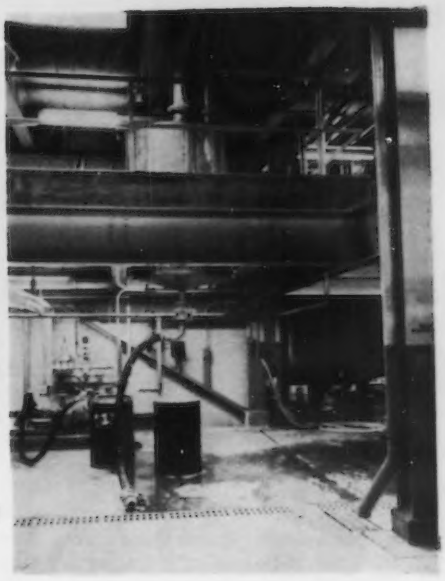
Since calcium carbonate has a tendency for bridging, its storage silo has an eccentric bottom from which the material (as in the other silos) is discharged to a screw conveyor and transported to the weigh system.

Starch for the size press goes from storage to a weigh hopper and then to two highly automated starch cookers which are said to be the work horses of the operation. Moyno pumps are used to transport the cooked starch to a 4500 gallon hold up tank below No. 3's size press. It is then pumped to two 1800 gallon circulating tanks and through a Cuno filter to the size press.

Internal starch is mixed in an 1800 gallon tank, then goes to a hold-up tank from which it is pumped through a circulating loop to the area of No. 3 machine. The starch, at this



Moyno pumps are used to unload coating from bulk carts and to circulate it to the trailing blade coaters.



Latex and other coating ingredients are mixed, then loaded into bulk carts through flexible hose from tank above.

point about 2½ pounds solids per gallon, is taken off as needed and goes to a starch water mixer where dilution water is added at a constant rate of 50 g.p.m. The solution then passes through a Schutte and Koerting jet where the starch is cooked, and then to No. 3's pre-mix tank. Control of starch content is obtained simply by varying the rate of starch solution flow from the circulating loop, thus overcoming the problem of constant capacity of a jet cooker.

Titanium dioxide is handled similarly to internal starch. An important feature of this system is that it is provided with a flush system that brings all this high cost material back to the mix tank so that none is lost.

A miscellaneous additive system includes three mix tanks and five holdup tanks each with its own circulating loop. This system handles lime, two dyes, pitch dispersant and defoamer.

For the calender water boxes, bagged material is mixed with water in an 1800 gallon tank, then pumped to a 3000 gallon holdup tank beneath the board machine. This supplies two 1000 gallon circulating tanks, which supply the calender's four water boxes, two on each side. Through this system separate solutions can be supplied to the two sides of the sheet.

Coating System

A highly automated system is utilized to supply coating solution to the trailing blade coaters. Bulk latex used in the formulation is brought in by tank car and unloaded to two 9000 gallon storage tanks. The latex is mixed with stabilizer solution plus calcium carbonate and one of two types of clay, then from a blending tank is gravity fed to bulk carts. These are large tanks which are moved by lift truck to No. 3 machine where they are coupled with flexible hoses to a separate supply system for each of the trailing blade coaters.

A 15 g.p.m. Moyno pump is used to circulate the coating solution from the bulk cart to the pump and back to the cart for a short period of time, then pumps to the circulating tanks. Larger Moyno pumps then circulate the coating to the trailing blade coaters, then back to the circulating tanks.

Each of the coaters has three circulating tanks and three Sweco screens. This equipment as well as the makeup equipment is blanketed with moist air to prevent drying out.

PRINCIPAL SUPPLIERS

Additive and coating slurry pumps	Moyno
Additive system pumps, electric motors, fan pump	Allis-Chalmers
Broke tower agitators and dilution nozzles	Improved Machinery
Complete board machine, breaker trap	Black-Clawson
Consulting and construction engineering	Rust Engineering
Doctors	Lodding
Dryer drainage system	Marathon
Electrical controls	General Electric
Helper drives	Reliance
Hydraulic pumps for king roll bending, press loading, etc.	Vickers
Instrumentation	Foxboro
Jonsson screen, felt conditioners	Bird Machine
Jordans, broke pulper, broke conveyor	E. D. Jones
Machine hood and air system, building ventilation	Jamar Olmen
Refiners (Claflin)	Emerson
Roll wrapper	Lamb Grays Harbor
Saveall	Dorr-Oliver
Steam joints	Johnson
Stock and water pumps	Goulds
Stock cleaners	Bauer
Tile work	Chemical Lining
Trailing blade coaters	Rice Barton
Trim system on winder	J. O. Ross
Turbine	Westinghouse
Vacuum pumps	Nash

Deinkers Dine in Dairyland, Discourse on Costs, the Future

What does deinking mean to the cost-conscious? Where is the deinking industry heading? asks the fifth TAPPI conference, largest ever, just held in Appleton, Wis.

Harry Dyer,
Assistant Editor

Today's economics and the future of deinking came under close scrutiny at TAPPI's fifth annual confab as 143 attendees heard how:

- Recovery of chemicals, heat, and water cuts deinking costs at Bergstrom Paper Co.
- Deinking holds hidden advantages in opacity, stock preparation, reclaiming special brokes.
- Savings can be affected in deinking costs by keeping careful track of manufacturing and processing expenses.
- A sorting inspection system has reduced paper stock problems in the paper mill by 90 per cent at Newton Falls Paper Co.
- Research is the only answer to continued use of paper stock but why is there no financial support?

The two-day confab was divided into four-man panel sessions in the mornings and on visits to the Bergstrom Paper Co. and Institute of Paper Chemistry during the afternoons. Appleton, Wisconsin's rejuvenated Hotel Conway was the scene of the meeting, on Thursday and Friday, October 6-7. As announced by the conference chairman, 143 persons was a record number of registrants for a deinking conference.

Thursday's banquet speaker, D. W. Bergstrom, vice president of the Bergstrom Paper Co., called for better communications between the paper stock generator, dealer and consumer, and within a single plant. Purchasing men, he said, do not acquaint technical men in their plants about the complexities of the paper stock business. Of new paper put onto the market, he said, some 6 per cent is destroyed, and some 60 per cent is available for possible reuse.

This material isn't used, he claimed, because of technical and economic reasons. The overcoming of these problems is the business of technical people. Mr. Bergstrom praised the Waste Paper Utilization Council as a good example of communications about what makes good paper stock and what new paper products, adhesives, and plastics, produce headaches for the paper stock consumer.

Moderator of the "Economics" panel was D. B. Geffken, general superintendent, Paper Mill Division of Sealright — Oswego Falls Corp. Speakers included A. Neil McLeod, Institute of Paper Chemistry; John L. Clouse, technical assistant to mill manager, Oxford Paper Co., West Carrolton, Ohio; Kenneth L. Maves, test lab supervisor, Bergstrom Paper Co.; John W. Wendell, Jr., deinking plant superintendent, Tileston and Hollingsworth Co.

Participants in the "Future of Deinking" session, moderated by J. C. Mills (Wyandotte Chemical Corp.) included: J. Wayne Morrow, paper mill superintendent, Newton Falls Paper Co.; Norman Thompson, and John Swanson, Institute of Paper Chemistry; Ralph W. Kumler, manager of Waste Paper Utilization Council; and Henry J. Perry, management consultant.

The Deinking Conference Committee was composed of James D. Allen, Bergstrom Paper Co., general chairman; M. R. Kinne, Sealright—Oswego Falls Corp., program chairman; H. E. Stevens, Ward Paper Co., treasurer; George C. Sisler, Bergstrom Paper Co., tour chairman. It was announced that the Sixth Deinking Conference would be held in the Kalamazoo, Mich., area.

Following are excerpts from several of the papers presented at the conference:

Part of head table at the banquet (l-r): George C. Sisler, Bergstrom Paper Co.; M. R. Kinne, Sealright-Oswego Falls Co.; A. J. Felton, Black-Clawson Co.; P. E. Nethercut, TAPPI; F. P. Doane, D. W. Bergstrom, (speaker), and J. D. Allen, Bergstrom Paper Co.; H. E. Corwin, Diamond Gardner Corp.; H. E. Stevens, Ward Paper Co.; E. R. Laughlin, Inst. of Paper Chemistry.

Kenneth L. Maves

Economics of Recovering in the Deinking System

Kenneth L. Maves

Bergstom Paper Co.'s deinking system is a continuous one: paper stock is added to a Hydrapulper at the rate of 12-14,000 lbs/hr. A typical furnish, comprised of 20 per cent kraft, 10 per cent ledger, 5 per cent tab cards and 65 per cent books and magazines, is cooked at 190°F by direct steaming and at six per cent consistency. Chemicals added include 370 lbs/hr of 50 per cent caustic, 0.4 per cent TSPP, and 0.05 per cent detergent.

Secondary defibering is accomplished in a jordan, then screening in a Centriffler and Jonsson screens at 1.5-2.0 per cent consistency takes place. The stock is then thickened to 12-14 per cent on an Oliver drum washer. This is only place in system where fresh water is used, here to aid displacement of chemical. Diluted to 1½-2 per cent consistency, the stock flows onto a 4-stage countercurrent side hill washer. White water is showered on the stock at the last stage. First stage effluent is pumped to the disposal plant. Three stages of bleaching (chlorination, wash, extraction, wash, hypo) occur before the stock passes through 2 Vibrator screens, 4-stage Centricleaners, a second drum washer, and stock chest.

About 25 per cent of the effluent from the first drum washer is returned to the Hydrapulper, 75 per cent being used at the Centriffler and Jonssons. This effluent contains about 18.5 lbs. alkali (as NaOH) per 1,000 lbs. fiber. If this were not recovered, 47 lbs. new NaOH per 1,000 lbs. fiber would be required to maintain alkalinity. This represents a saving of 40 per cent in caustic soda usage, or 93¢ per 1,000/lbs. of fiber (at 5¢ per lb. of NaOH).

Fresh water used on the first drum washer's showers at 180°F (and 550-600 g.p.m. per 1,000 lb. fiber) is returned with liquor at 170°F. Steam consumed is 1,200 lbs. (at 20 lbs. gauge) per 1,000 lbs. fiber. This includes steam to fresh water heat exchangers as well as direct steam to maintain temperature of 190°F at Hydrapulper. If this heat were not recovered, steam required at pulper would be 2,200 lbs/1,000 lbs. fiber. This recovery represents a 45 per cent saving, or 83¢ per 1,000 lbs. fiber.

The washer also serves for the recovery and re-utilization of water. Without recovery an additional 5,200 gallons per 1,000 lbs. fiber would be required. Reclaimed water is also used at: 1) dilution and shower water on incline washers is excess paper mill white water and bleachery effluent; 2) dilution water prior to bleachery is effluent from screen room and vacuum washer; 3) dilution water for bleach washers is effluent from respective washers, while showers use paper mill white water; 4) dilution water for screen room is excess paper mill white water plus screen room vacuum washer effluent.

At Bergstrom, deinking waste is removed from first incline washer. At the rate of 1½ million g.p.d., 50 lbs. per 1,000 gal. of suspended solids are sent to the disposal plant where 50 per cent of the solids settle out. The filtered sludge is used as ground fill.

Henry J. Perry

Economics and Use Of Paper Stock

Henry J. Perry

A new look at paper stock useage is needed. As forest lands become harder to acquire the pendulum may swing towards greater paper stock useage.

Sorting labor costs have seen a 6-fold increase from 20-25 cents to $1.50 an hour with very little increase in a sorter's ability and productiveness.

Some new grades will be established, others eliminated, and some will become scarce as competition from non-paper materials increases and intra-industry competition shifts grades, and as there are new developments in paper and board.

Mixed papers will see an increase in volume but demand will decline; folding and containerboard grades have already lost a sizeable market. Contamination will increase with little hope of quality improvement with present cleaning methods. Unless there is a breakthrough in mechanical sorting and cleaning, these grades are destined for incinerator fuel.

Old news will steadily increase though supply may be limited if volume of mixed papers on sorting belts declines. Its major use in filler and back liner stocks depend on the inroads that bleached fourdrinier boards and other aggressive competitors make. Magazine inserts and color may present contamination problems.

Old corrugated boxes—availability will increase as no likely competitor is foreseen. Capital and operating costs are closely competitive with wood pulp if modern high speed equipment is used. Manufacturers near consuming centers offer freight savings up to perhaps $15-20 per ton. Demand for better cases is introducing more additives as foils, films, waxes, asphalt, wet strength resins, synthetic fiber tapes, colors and solid printing are becoming important. It is possible this grade may deteriorate into a conglomerate.

Ledger stock. This grade should be classified according to source: 1. from converting and printing plants, where quality control can be affected at the source. 2. Waste baskets of metropolitan areas. This waste suffers from all ills of major contamination and no presently known methods of deinking can consistently produce stock for high grade papers.

Old books and magazines pose many problems from new inks, adhesives, decoratives and inserts. Cost of sorting here precludes quality control by name of magazine.

Other grades—Many make up lower volume of tonnage generated in converting and printing plants. These range from high value replacement pulps, such as white envelope cuttings to unusual items as waxed glassine. These grades have a common characteristic in that there source is known. Therefore it is possible to have a measure of quality control.

The future is geared to three fac-

D. B. Geffkin

tors: 1. smaller and older non-integrated paper mills using paper stock as a replacement pulp, or have a deinking plant attached are relatively inflexible as to the grades they can use. Any shortages or changes in generator patterns with attendent price rises raise havoc with mill costs.

A deinking plant is designed principally to disperse the ink vehicle plus wash, screen, bleach, and clean the stock. These latter stages are adaptations of equipment and processes from wood pulp mills. The result has been that the deinking industry has developed very little new technology to meet challenge of new forms of contamination.

2. The largest volume of production is geared to slow-running cylinder machines. Such new cleaning methods as have been developed are largely confined to removal of junk and heavy material and dispersion of wax and asphalt. If reports from England are true, the Inverformer seems to have broken the slow speed barrier.

3. In stock cleaning and in the deinking process, there has been no such breakthrough.

The only answer to problem of continued use of paper stock is research—from point of origin to point of use. This is no-do-it-yourself or wait until some machinery manufacturer does-it-for-you problem. It is collective matter for which only generator, distributor and user has enough of a financial stake to make it worth-while.

The lacking ingredient is money which is up to management to supply. Why is there no financial support? The obvious answer is that no one has ever developed a sound comprehensive research program which management could support with reasonable expectation that it would be worth the money invested. Gentlemen, this is the problem.

Determining the Cost Of Deinked Pulp

John W. Wendell, Jr.

The accompanying table shows a typical cost record of the type maintained by the Tileston & Hollingsworth Co. Four columns (pounds used, per cent, cost/100 lbs., and total amount) have been omitted in the interests of space, but the majority of mills have these cost elements in common.

A. Neil McLeod

DEINK MANUFACTURING EXPENSE

Raw Materials Used:
- Heavy Book—Regular
- Heavy Book—Special
- White Broke
- White Ledger
- White Tab Cards
- Colored Tab Cards
- Flyleaf
- Misc.

Sorting Operation

Opened & Sorted During Month
- Heavy Book—Regular
- Heavy Book—Special
- White Ledger
- Colored Ledger
- Misc. Waste

Less Rejects

Waste Corrugated Burlap (from wrappers and from furnish to Hydrapulpers)

Dump (misc. trash from sorting floor, waterproof wrappers, ink gobs, tramp metal, button, clips, from riffler)

Available From Sorting (not a perfect picture of yield but close approximation)

Add-Sorting Labor hrs.

Add-Baling Labor hrs.

Total Sorted Cost

Add-Inventory at Beginning

Deduct-Inventory at End

Raw Materials Used Directly in Hydrapulper
- Heavy Book—Regular
- Heavy Book—Special
- Broke
- Colored Tab Cards
- White Tab Cards
- Colored Ledger
- White Ledger
- White Shavings
- Flyleaf

Materials Direct to Hydrapulper

Total Materials to Hydrapulper

Add Receiving & Handling Labor

Total

Add: Brown Stock at Beginning

Deduct: Brown Stock at End

Shrinkage

By Deduction Bad Cooks (paper stock to Hydrapulper (at 5% moisture)—wgt of 10% a.d. deinked fiber produced.)

Net Material Cost

Processing Cost:
- Labor Plus Surcharge
- Caustic
- Bleach
- Solvex
- Mistron
- Electric Power
- Filtered Water
- Steam

Total

- Repairs
- Supplies & Expense
- Equipment Rent
- Floor Rent (bldg. maint., insurance, taxes, depreciation, heating, lighting, elevator, watchmen)
- Superintendence
- Overhead

Total

Waste paper expense must include the price to dealer or packer plus the cost of freight if the material has not been purchased on a delivered basis, and the expense of unloading, weighing and testing. The size of the inventory has a great bearing on the manner it is evaluated for cost accounting purposes. A 3-4 weeks supply would be evaluated on a first-in, first out basis. When larger, a last-in, first-out basis is more common. If market prices have been large, it could otherwise lead to serious errors.

The amount of wrappers and wires, quality of packing, excessive tare all tend to increase true costs. The cost of handling, baling and shipping of outthrows is usually greater than the recoverable resale value.

Labor costs include those involving receiving and handling (receiver-weigher and jitney drivers), sorting, baling (outthrows and cleaning up), and processing (pulping, washing, etc.).

Costs determined on a per-hundred basis can be useful for a variety of purposes by nearly every level of

Norman Thompson

Ralph W. Kumler

James C. Mills

management within a company. Some of these purposes include: checking and remedying excessive process costs, checking shrinkage, forecasting costs and quantities of materials, setting prices, and comparing cost of deinked pulp with raw materials.

Economics of Deinked Stock Usage vs. Virgin Pulp Usage

John L. Clouse

Deinked stock going to paper machines rates approximately with a 50-50 mixture of hardwood kraft and softwood sulphite. Brightness level of deinked stock runs ordinarily at level of semi-bleached market pulp. In the following, the figure $30 per ton is used as the difference in cost between deinked stock and the type of virgin pulp it would replace. The areas where deinked pulp have hidden advantages beyond direct replacement costs include: opacity, stock preparation, reclaiming special brokes, dye usage, saveall usage, and waste treatment.

Hydration of virgin pulps greatly reduces their opacity. Deinked pulps require very little hydration; therefore, very little opacity is lost. A 55-lb. sheet, made principally of deinked fiber tests no less than 3½ points higher in B & L opacity. To close this gap by filling a virgin sheet with opacifying fillers would cost $10-15 per ton of rough production. A 50-lb. virgin sheet would cost $40-45 more to achieve the same opacity.

Purchased pulp cost is the cost delivered to the siding and does not not include unloading, slushing and refining costs. Deinked stock is the cost of slushed pulp ready for the paper machines. To unload, slush, and refine pulp costs $5-12 per ton.

Deinking mills can make use of special brokes which might otherwise cost the original manufacturer. Mills making papers with a variety of colors, special fillers, special addi-

John L. Clouse

J. Wayne Morrow

tives, or surface applications cannot use trim, shaving, and other broke until the next run. Therefore, it has to be stored, or it may be sold to waste paper dealers. A deinking plant can also handle its own broke without baling or storage costs.

Miscellaneous advantages of using deinked stock are: dye usage may be cut in many mills; the deinking process acts as a saveall for excess paper machine white water; a deinking plant bears a lion's share of waste treatment costs; otherwise, the cost borne by the paper machine is appreciably increased.

Practical Approaches to Solving Deinking Problems

J. Wayne Morrow

Several years ago we added an inspector to the sorting operation on a 24-hour basis. This man kept samples of objectionable material, of rejected bales, and of questionable material as well as detailed records of bales in every carload. Our suppliers were also informed of the program and were invited to view the operation first-hand. Within 6 weeks, quality was improved, not only of paper coming into the plant but within the plant. Granted, we were rejecting more paper, and packers gave us some strong arguments, as we did them, but today, all concerned have benefited.

Our inspection program gave the packer confidence in the information sent to him regarding complaints and rejections, thus helping him to put out better quality bales. For example, the mill received 2,000-lb. bales of the file stock with paper still in manila folders. The mill rejected the bales for containing too much scotch tape. What was our practical solution?

From each bale, 25 pounds of folders and their contents were taken and were very carefully sorted. All pieces of tape one-inch by ½-inch or larger were counted. By computation, it was found that each ton of this paper stock had the equivalent of a piece of tape 4 inches wide by 150 inches long. The packer accepted the rejection on this basis.

A side effect of the inspection system was to impress the working personnel with the importance of producing a quality product. Morale was raised by showing that the company did not consider the operation as a junk-handling job.

The result: Newton Falls has been able to reduce paper stock pulp problems in the paper mill by 90 per cent.

Bleached Board Finishing Operations Need a Fresh Look

Are you losing money on this operation? Mr. Robinson says most mills are, whether they realize it or not. He discusses how this condition arose and what should be done about it.

J. W. Robinson,
Finishing Consultant

Due to the combined efforts of suppliers, the editors of PAPER TRADE JOURNAL, some management groups and especially line supervision, I would hesitate to refer to the finishing and shipping departments in the paper industry as the "Stepchild of the Paper Industry." **Now!** Much of the industry, however, is still using a wait and see attitude toward automation in this department.

Without question, the fine paper field is the pace setter in this trend toward "Something Can Be Done About Paper Finishing."[1] With all due respect to the many very fine management groups that I know in the "Bleached Board" field, in general, I am very disappointed in their attitude, toward board finishing and its problems.

Having been very closely associated with both phases of the industry for several years, it is my honest opinion that the problems in a finishing and shipping department on bleached board are fully as complex as in a fine paper mill. In some cases more so. The bleached board field has snowballed in the last ten years. Probably the slowest growing part of this field has been the selling price.

Paper vs. Board Finishing Costs

Ask yourself: "In which field can the finishing room affect the profit and loss statement the most?"

The average selling price of bleached board is only slightly over half that of fine paper grades.

- The upcharge for sheet stock on fine paper is almost double that of bleached board.
- The waste or shrinkage factor in the finishing room is on an average just as high on bleached board as on fine paper.
- Actual skid costs are on an average much higher for bleached board than for fine paper.
- A fine paper mill can order and carry in inventory stock sizes on skids and pallets. There is no such thing as a stock size on bleached board.
- Cartons, wrappers, labels, tape, etc., cost just as much for bleached board sheet finishing as for fine paper.

Yet, several fine paper mills have reached the point that they are processing just as many **tons** of sheets per manhour through the finishing room as the average bleached board finishing room.

Background on Board Finishing

For the benefit of those who are not closely associated with bleached board, generally speaking, the "bread and butter" orders are the folding carton grades with basis weights from 130 pounds (24 x 36 — 500) to 350 pounds. The caliper range on this grade is from .010 to .026. Usually, when a paper maker speaks of a bleached board operation this is the grade he thinks about.

A short 12 years ago, when you spoke of board and a finishing room operation together, this was so simple that it was hardly worth while for a management group to spend the time that was necessary for them to solve the problems involved. This, together with the fact that until very recently the finishing room has not been represented in management groups, has permitted most producers of bleached board to get into a trap that is going to take some doing to get out of.

How Did They Get Into This Mess?

There must be a reason why the bleached specialty board manufacturers have permitted themselves to get into the position where generally their finishing rooms are a losing proposition. The original upcharge was based on the "bread and butter" grades that I mentioned. This was based on untrimmed skid packed sheets with very little coating, if any. Printing presses were comparatively slow and a close register did not mean too much, Now, this picture has changed so that the demands are equally as exacting on most bleached board as on fine paper.

As this market has become more competitive, the sales departments, through no choice of their own, have had to beat the bushes for additional grades to cushion the bread and butter grades. Now, it is not unusual for a bleached board mill to be producing the following grades. Tabulating card, envelope, manila file folder, index, merchants tag, vellum, hood stock, lid stock, spiral wound can and pail grades, butter chip stock, cup stock, cigarette box and carton stock, as well as many others. A mill processing all or even a large part of these grades has very complex and expensive operations in the finishing room. Still a finishing room man is "Walking in where the angels fear to tread" when he tries to tell sales that they should get more money for upcharge on certain grades. (My present and past associates excluded.)

Look at Your Costs

Any management group in the bleached board field that feels that they are getting a proratable share of profit per dollar invested and spent from the finishing room had

[1] The title of a series of nine articles on fine paper finishing published in Paper Trade Journal in 1960.

better take a close look at their cost accounting system.

If management feels that the present overall margin of profit is sufficient, then they should more evenly distribute the profit that is made between the departments. This way the finishing room man would have some incentive to push a little harder. As it stands now he is somewhat of a whipping boy or at least, he feels that he is at best, a necessary evil and that by doing his very best he may show less of a loss on his department than his competitor.

Of course, the simple solution is to go up on the upcharge. This is not a fair solution to the converters and the end users until such time as the management groups in this field recognize the fact that they are far behind the fine paper field in automation in this department; and, do everything they can to bring this operation up to par with the rest of the mill.

It is depressing to find so many groups that are so well versed on the preparation of pulp and the manufacture of board and are apparently so far behind on such things as high speed precision rotary cutting, automatic and statistical inspection, automatic sheet handling and packing equipment, adequate loading facilities, economical inventory systems, proper warehousing, etc.

I offer below a few suggestions, that may increase the efficiency in the finishing and shipping department of the bleached board mills.

Improving Cutter Operation

Go through your rotary cutting operation with a fine tooth comb. If you are getting too much variation in sheet lengths there are several contributing factors. Check to see if the manner in which your rolls are handled or stored are causing flat places.

Flat places on rolls will cause sheet length variation. Check to see if the manner in which your rolls are being shafted is causing an uneven pull against the pull rolls. See if your shafts are in perfect alignment. Sometimes a shaft will be perfectly straight and will still deflect more in one position than another. (Shaftless backstands will answer part of this problem.)

An adequate braking arrangement is a must if you are to control sheet length. This braking arrangement must be controlled by some good type of sensing device. This sensing device should also signal your squeeze rolls. Dead drag decurling bars sometimes contribute to sheet length variation. Check the journals on your squeeze rolls to see that they are in perfect alignment. A sprung journal on a squeeze roll will surely cause length variation. It is hard to keep these journals true without proper control on the nip pressure. By proper control I mean sensitive two way acting air cylinders. These cylinders should be hooked up with a quick acting relief valve that is also tied to the drive motor.

Then check your complete drive assembly to see how much slack or backlash you have. This can come from any one or all of several points. With backlash you cannot maintain accurate sheet length. At certain speeds the fly knife will hit a rhythm point and length will run all over the ball diamond. Check your mill air supply to be sure that you are not getting surges on your air supply to the cutter. This is difficult to catch but can cause a "mess" of trouble on sheet length. Install the proper equipment for holding your sheet steady between the squeeze roll nip and the cut off point. This will cause unsquare sheets as well as variation in sheet length.

In order to maintain accurate sheet length you must have variable speed control on the belts that take the sheets directly from the cut off point. Have your electrical department control your drive motor so that it will accelerate and decelerate very slowly with push buttons. The only exception should be an emergency stop button.

Other Places for Improvement

When you have corrected your sheet length problem, there are many things that can be done to get clean cuts on heavy grades. Also there are many things that can be done to control squareness just as closely as can be trimmed on a trimmer.

Sheets can be accurately counted on a cutter with photo electric counters on the downstream side of your rejection point if you are using automatic inspection equipment.

Off machine automatic sheet inspection equipment would be invaluable to some mills that I know of.

Suppliers of automatic carton sealing equipment have come a long way in the last couple of years.

Spear unstackers, skid stackers, conveyors, automatic strapping machines, pneumatic strapping tools for 1¼" strap, inflated dunnage, etc., are a few of the many things you should consider.

"Several fine paper mills are processing just as many tons/man hour through their finishing rooms as the average board mill."

Take A Fresh Look

With all due respect to some of the fellows that, so to speak, cut their teeth on liner board, may I suggest that you take a look at this bleached board subject. With the exception of a few periods, we have enjoyed a sellers market for several years. I predict that this trend is near the leveling off point. There are many hidden potential savings in your finishing and shipping department and many ways to improve your quality other than on the paper machine. There are also many ways to reduce your waste beside keeping stock out of the sewer.

Encourage your finishing and shipping department heads to visit with each other, and swap ideas. Then when they bring a good idea back, listen to them. Give them a voice in how to help you make money instead of how to keep you from losing money.

Bleached specialty board grades are here to stay; but, I am afraid, that some of us are not unless we quit thinking of the finishing room as a board finishing room as it was fifteen years ago.

"The finishing and shipping problems in a bleached board mill are fully as complex as in a fine paper mill. In some cases more so."

EDITOR'S NOTE: *The author has promised to write another article on board finishing, dealing specifically with questions raised by our readers. Send in your comments, problems and questions.*

Are You Obeying the Rules In Your Groundwood Mill?

The twenty accepted rules for production of good quality groundwood are reviewed here in the light of present mill practice. Where do you stand?

It is now five years since Karl H. Klemm published his paper "The Interpretation of Groundwood Production by Fibre Technology." (Pulp and Paper Magazine of Canada 56, No. 12:178, Nov. 1955) In this classic work Dr. Klemm laid down 20 rules that should be obeyed for the production of a satisfactory grade of groundwood.

In his book "Modern Methods of Mechanical Pulp Manufacture"*, although the same information is there and in more detail, modesty seems to have overcome Dr. Klemm and he did not spell out his rules in the same definite manner as they were in the paper referred to above.

The present worker has, however, found the definite character of these rules to be of great assistance in assessing the performance of various groundwood mills and in trying to raise the standard where it is deficient. The rules are especially valuable in demonstrating deficiencies in operation both to the immediate operators and management.

After five years it is perhaps worth looking again at the rules and assessing their importance, and they are so tabulated in the following. How does the operation of your groundwood mill compare with the practice of these rules?

* Printed first as a comprehensive series of articles in Paper Trade Journal and later (1958) published in book form by Lockwood Trade Journal Co.

Rules for Groundwood Pulp Manufacture

1 To check the groundwood of the whole mill, samples should be taken from the deckers or filters. Samples should be taken from the grinder pit only to check the operation of individual grinders.	This rule is usually followed. However there is very rarely the technical control attempted that is given for example by sometimes following the sharpening cycle of given grinders.
2 Automatic samplers should be used for the test samples on which a groundwood control program is based. Spot samples should never be relied on but successive small samples amalgamated and tested.	Automatic samplers are essential if the operation is to be efficiently followed. They are, however, in use in Canada and the USA only by a few very progressive companies.
3 For an adequate grasp of groundwood evaluation, a knowledge of the structure of groundwood components is needed.	This is true, as can be vouched for by anyone who has had to go back to the groundwood mill to try to assist the paper machines. Very rarely is the necessary knowledge available. Technical men who spend their lives applying technology to chemical pulping seem at a loss with groundwood and reluctant to apply scientific principles.
4 To operate an effective system of groundwood quality control, freeness tests should always be combined with fiber classification tests and/or strength tests.	This is usually followed in the mills but the interpretation is lacking and too often there is lack of any real plan.

5 The screening system should be regularly checked and efforts made to adjust it to the point of optimum operation with regard to the "sliver content" and "long fiber yield" in the accepted stock.	This is a very valuable tool but if there are any mills doing it they are not known to the author . . . neglect of this rule is difficult to explain.
6 For the production of high quality groundwood relatively coarse grit stones should be used. With increasing load and higher freeness wanted, coarse grits should be used and vice versa.	This rule is beginning to be generally obeyed. It is, however, astounding how many operators are ignorant of the grit composition. Management nearly always could answer a question on the type of headbox on the paper machine but practically never one on the grit type of the stones in the groundwood mill.
7 Make the sharpening intervals as long as possible and so achieve the highest possible groundwood quality with regard to the total number of grinders in use.	This is the basic point for the production of a good quality groundwood. It is ignored in at least 30 per cent of the mills known to the author. These mills then wonder why they have dufficulties on the paper machine.
8 Relatively heavy sharpenings should be used, compensating for the high freeness during the first or self-conditioning period by extending the third or slow-down period of another stone.	This rule seems generally obeyed. The grinders must be in a good enough mechanical condition to enable careful use of the micrometer lathe.
9 The self-conditioning period should be shortened. This can be achieved by artificially obtaining the same dulling as is caused by the friction between wood and stone in the time immediately after sharpening.	This rule is often abused; the stones are frequently carelessly sharpened and then dulled to make up for this.
10 For economic production of good quality groundwood, use the principles of high temperature-low consistency grinding with temperatures above 150 and consistencies below two per cent.	This rule is not observed by many mills—temperatures are often as low as 130 and consistencies rise as high as 2.7 per cent. This gives an inferior groundwood.
11 Operate the thickening equipment with the highest possible consistency and use paper mill white water instead of slush stock for dilution in the chests.	The most commonly broken rule. Without this, the temperature in the groundwood mill goes down. If it is not obeyed the efficiency of the thickeners is allowed to drop without anyone being interested.
12 The r.p.m. of the stone with any grinder installation should be such as to provide a surface speed which gives an initial grinding time in the range of 50 to 60 milliseconds.	The stones are now generally in this range, although often they are still too fast.
13 The load applied to a grinder has to be selected in regard to the properties of wood used, in order to achieve an initial grinding factor in the range of 0.9 to 1.1 at normal freeness (85-105 CSF). The factor can be higher with high freeness and should be lower with low freeness wanted.	In mills under poor control the same load is used regardless of all other factors; this of course results in a violent fluctuation of the groundwood quality. The rule is meticulously followed in all efficient groundwood mills and is combined with careful regulation of wood quality.
14 The grit size of pulp stones used has to be in balance with the initial grinding factor but should always be more on the coarse side than on the fine side. According to actual experience, 60 grit stones are appropriate for normal load and freeness. The grits should be coarser with higher and finer with lower freeness wanted.	This should be checked and known in all mills. It has been found to be a good rule.
15 To adjust the quality of groundwood to the prevailing conditions with a given grinder, alter the average depth of sharpening pattern. Increased depth decreases the final grinding factor and results in freer pulp and vice versa with decreased depth.	This rule has been found to hold and seems to be followed by all the mills under good technical control.

16 Set the freeness of groundwood in a given mill with regard to the conditions at the paper machines and the per cent of chemical pulp to be used, in any given mill at constant temperature. A decrease in chemical pulp content stipulates at the same time an increase in groundwood freeness.	This rule applies in the case of all mills where there is not an excess of drainage capacity. It is confused in the mills where large quantities of broke are fed back but it is still true.
17 Freeness of groundwood and load at the grinders have to harmonize in order to guarantee good quality groundwood; high freeness requires relatively high loads and vice versa.	This is a rule that all the good mills are careful to keep; it is not obeyed by any of the mills with poor technical control.
18 High speed at the paper machines combined with low chemical pulp content requires free groundwood with low percentage of fines and high percentage of long fiber and at the same time high dynamic and good static strength properties.	This rule is often broken. Two of the reasons are: (1) Restricted drainage capacity on the paper machine makes it necessary to use a freer groundwood. (2) The grinder capacity is insufficient for the groundwood demand.
19 To obtain optimum results with regard to the percentage of chemical pulp used in mills with diverse paper machines, suitable groundwood freeness should be provided for each paper machine. The development of special screening systems becomes necessary.	As far as the author can determine this is not a practice that is followed anywhere on this continent.
20 Actual operating practice in newsprint mills should be further advanced in order to achieve automatic control of groundwood quality to the paper machines and to eliminate the influence of the human element.	A futuristic thought, though there is no doubt Dr. Klemm is right.

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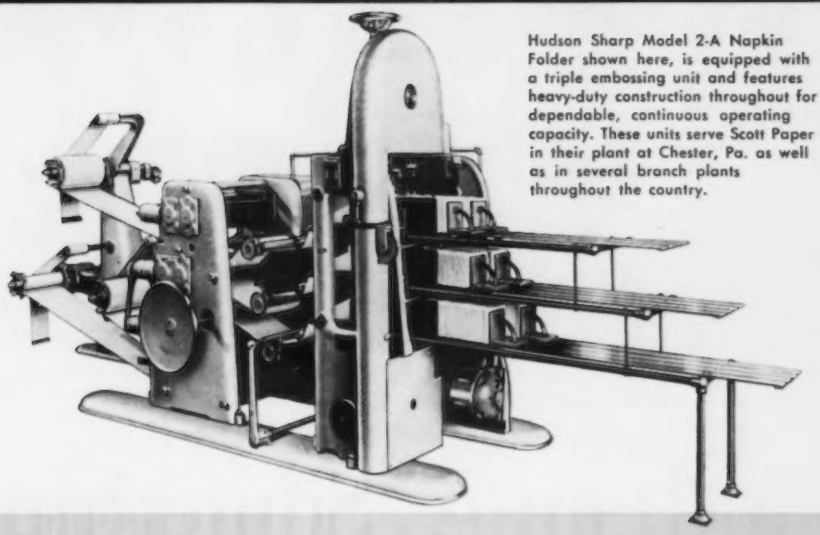
...Paper Table Napkins of Luxurious Linen-Like Quality

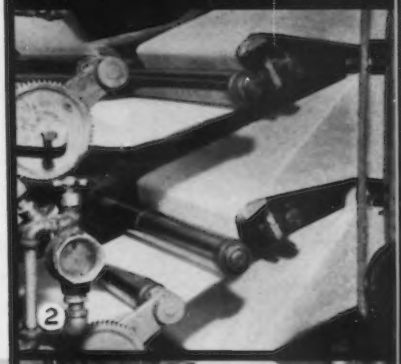
1 Production line of Hudson Sharp units shows "Scotkins" leaving folders for collating and delivery to automatic cartoning operations.

2 Three webs of "Scotkins" are processed simultaneously on Hudson Sharp Folders. Units handle both home and institutional type napkins.

3 Jumbo rolls of potential "Scotkins" stand ready for processing on Hudson Sharp's heavy-duty parent roll stands.



Hudson Sharp Model 2-A Napkin Folder shown here, is equipped with a triple embossing unit and features heavy-duty construction throughout for dependable, continuous operating capacity. These units serve Scott Paper in their plant at Chester, Pa. as well as in several branch plants throughout the country.



Helping to produce "Scotkins"—one of America's most popular, disposable, two-ply table napkins are a number of Hudson Sharp Napkin Folders. Rotary in operation, these machines process three parent rolls simultaneously and produce a minimum of 1500 embossed "Scotkins" per minute. Scott Paper Company also uses these same machines for producing institutional napkins which require an additional fold.

Putting Ideas to Work

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FMC Packaging Machinery Division
Hudson-Sharp Machine Company
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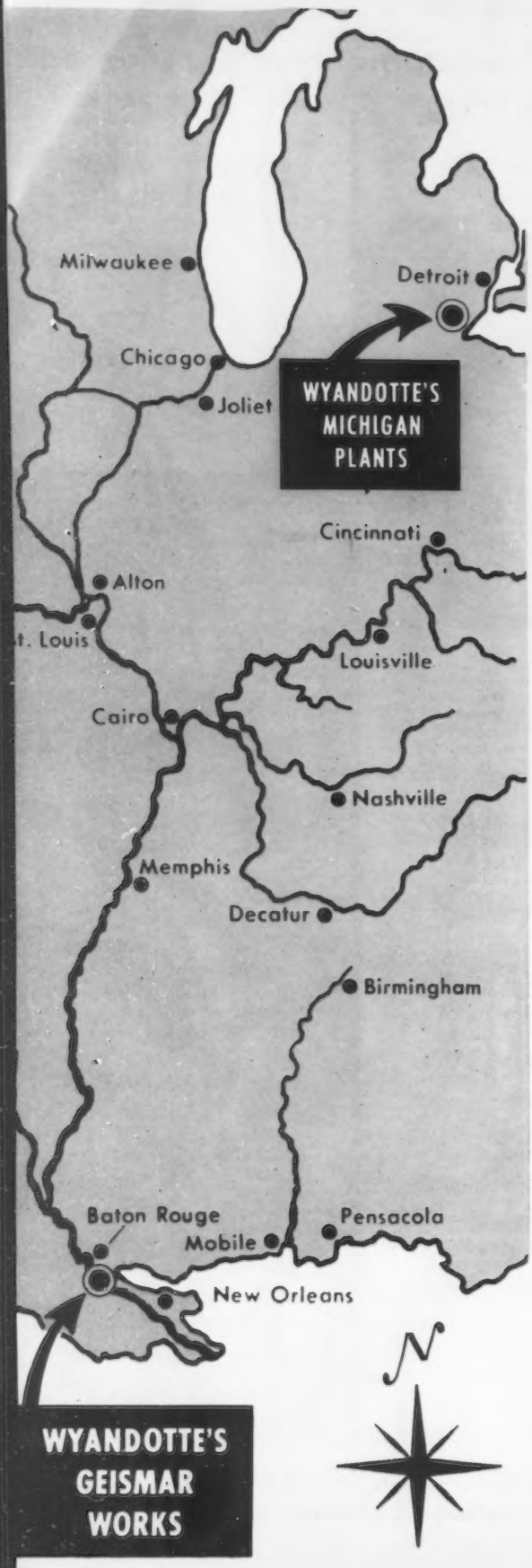


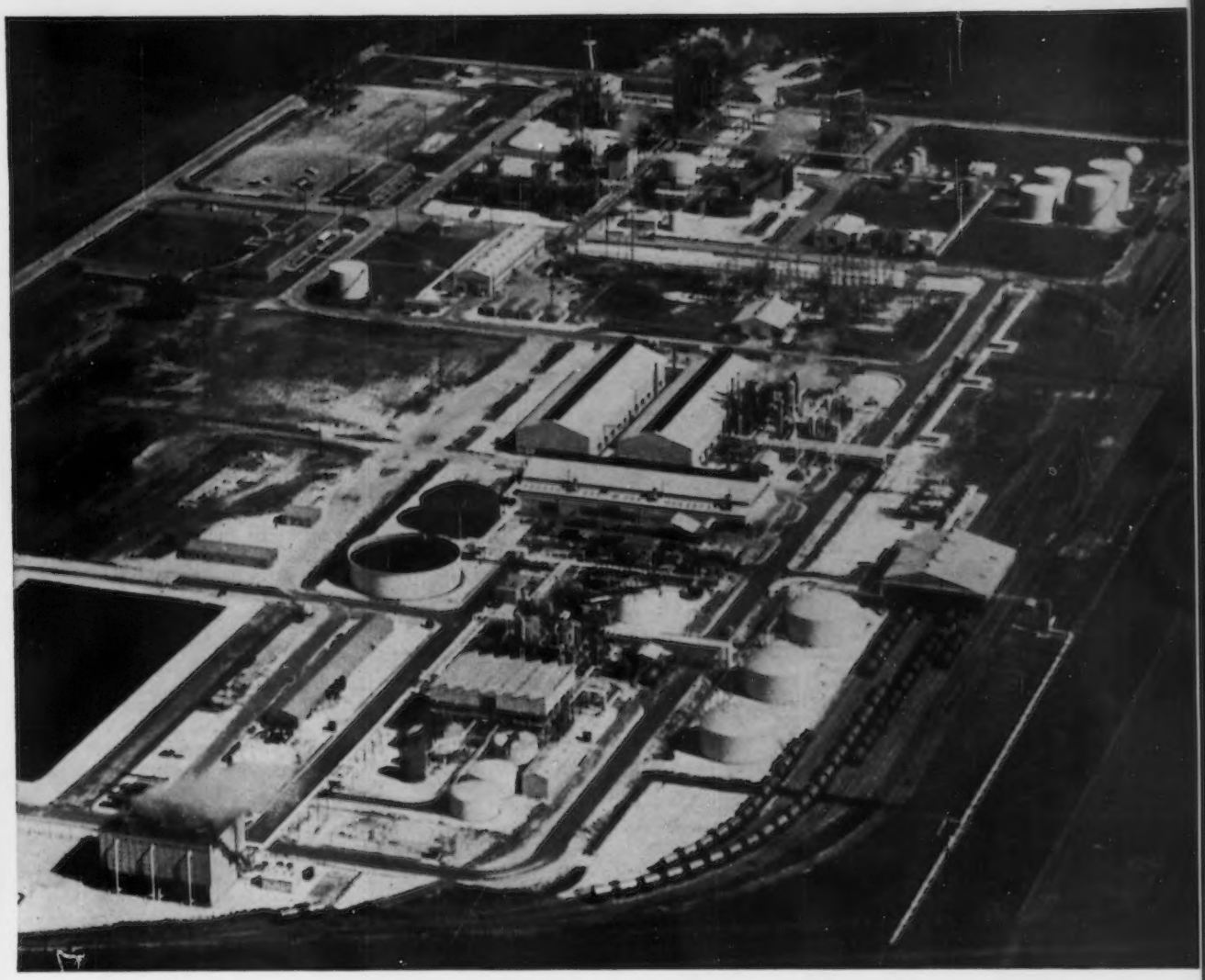
Something

Wyandotte's decision to produce chlorine and caustic in the South, as well as in the North, is proving its worth to a growing number of users of these two key chemicals. Can you benefit?

May we direct your attention to the map at the left? It illustrates an important point about our two chlorine-caustic plants. *Both are on major waterways.*

At Geismar, in the South, we are on the Mississippi . . . and close to the Gulf. At Wyandotte, in the North, we have direct access to the Great Lakes and the St. Lawrence Seaway.

Add to this the fact that railways and highways also go out from these two plants to four-fifths of the



Aerial view shows Wyandotte's new, modern Geismar Works immediately south of Baton Rouge, Louisiana. The chlorine-caustic facility is in the foreground. Ethylene oxide and ethylene glycol facilities are in the background.

ventured . . . something gained

productive capacity of the U. S. and Canada, and you see quite readily why more and more users of chlorine and caustic are taking advantage of our ability to ship economically and with dispatch . . . by barge or ocean tanker, truck or tank car. Can you benefit? We'd like to discuss the possibilities with you. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

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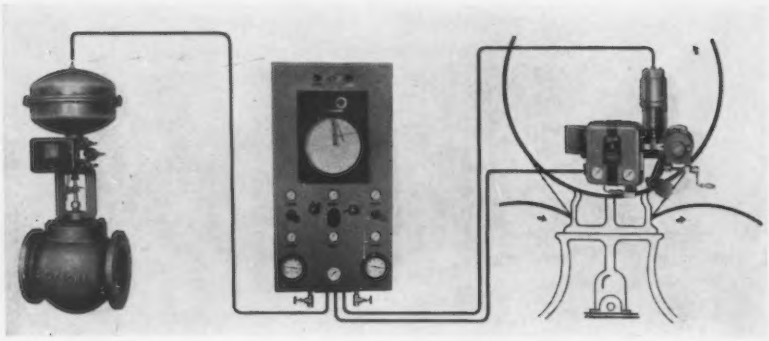


Moisture Control System Accurate at Any Speed or Weight

A model moisture control system for paper machine dryers is guaranteed to maintain the exact moisture content desired within ½ to 1 per cent regardless of machine speed, in any type of paper from .003 to the heaviest board.

Known as Pres-ten-trol, Model 460-C, it is claimed to be the most simple, trouble-free system ever built. Due to this simplicity, it is said to cost less to buy, install, operate and maintain than other moisture control systems.

The system consists of an all-new super sensitive adjustable detector with tension roll, control panel and diaphragm motor valve. The draw of the sheet, due to wetness or dryness, as sensed by the detector is signaled to the diaphragm motor valve. This valve then admits steam to the dryers in direct ratio to the draw of the sheet against the tension roll.

The manufacturer is Stickle Steam Specialties Co., 2215 Valley Ave., Indianapolis 18, Ind. Additional information is available from them.

Introduce New Fractional Horsepower Motors

A completely new line of fractional horsepower a-c. motors has just been introduced by the Master Electric Division of Reliance Electric and Engineering Co. Called "Duty Master" motors, the new line is now available in 1/20, 1/12, 1/8, 1/6, ¼, ⅓, ½ and ¾ h.p. ratings. Capacitor-start, split-phase and polyphase units are made in frame sizes 48 and 56; repulsion-start induction-run models come in frame size 56. Open protected, totally-enclosed, fan-cooled; totally-enclosed, non-ventilated; and explosion-proof enclosures may be specified.

Ruggedly engineered for industrial duty, the new fractional horsepower Duty Master motors feature a rolled steel frame with high-strength cast aluminum alloy end shields, reducing over-all weight by one-third over comparable units.

Either ball or sleeve bearings may be specified. Duty Master sleeve bearing motors may be mounted either vertically or horizontally with moderate end thrusts. The rotor is pressure-cast with high-purity, low-resistance virgin aluminum to form an integrated unit. The stator windings feature mylar slot insulation with cuffed ends, providing strength and improved insulation for the Formvar enamel magnet wire. Leads are of neoprene, and are permanently marked with easy-to-read identification numbers for fast identification during installation. Slip-on connectors of one size are provided for all leads; another size slip-on connector is provided for the incoming line to prevent confusion and speed the electrical connection of the motor.

Built-in thermal protectors operate in the event of excessive motor temperature or excessive current input. Mounting is provided for either manual or automatic reset types. For more information, write to Reliance Electric and Engineering Co., 24701 Euclid Avenue, Cleveland 17, Ohio.

New Double Filter Unit Can Be Blown Down On-the-Run

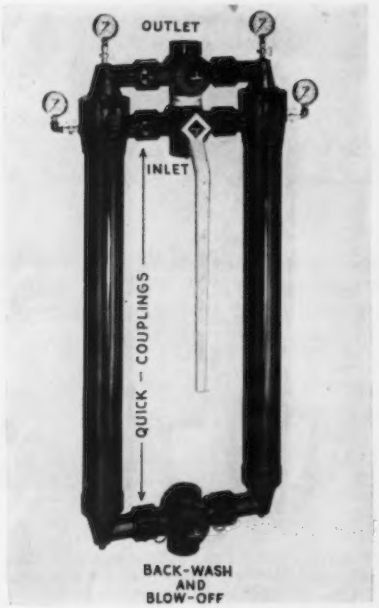
A new line of Double Duo Fluid Filter units, with reducing streamlined smooth flow, 3 way inlet, outlet, and backwash blow-down valves has just been introduced by Ronningen-Petter.

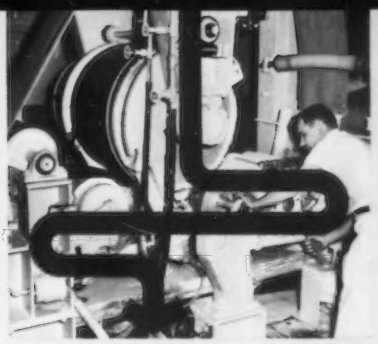
Each filter has inlet and outlet gauges to record pressure differential. Two filters are mounted together with reducing streamlined 3 way valves to make one DUO. Filters may operate together or alone, and may be backwashed and blown down on the run. All of these filters are quick coupling. Off-Service-On in a matter of moments. No tools. No high-priced mechanics and helpers needed. And, all are sealed at both ends—non-short circuiting—so no dirty unfiltered particles can bypass.

These filters are used for clarification of any fluid containing foreign particles in suspension, such as dirty water, viscous liquids, chemicals or oils, fluids with pipe scale or iron particles.

Rated 5 to 150 g.p.m.—10 to 700 mesh (30 microns)—pressures to 200 p.s.i.—temperatures to 200°F.—available in bronze; steel; 316 stainless steel; monel metal; or aluminum.

Bulletins, drawings, engineering data and prices will be furnished on request by Ronningen-Petter Co., 6870 East YZ Avenue, Vicksburg, Mich.





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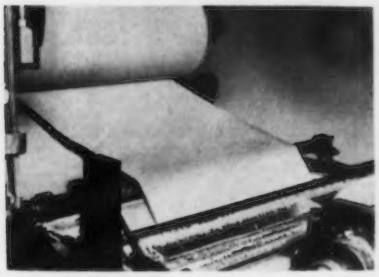
Bow Expander Roll Utilizes Thin Water Film

A principle of operation incorporated into a bow expander roll just introduced by Rodney Hunt Ma-



chine Co. simply uses a thin film of water as a bearing, thus eliminating bearing maintenance and failure. With only one moving part (in contrast to the many moving parts of the conventional bow roll) this roll, called the Aquatrol Expander, has very nearly frictionless rotation. This single moving part is a rotating rubber sleeve. The heart of the design is that the sleeve floats on a film of water to give uniform, smooth, even spreading action over every increment of face width, state company spokesmen.

The conventional bow roll design utilizes a bowed shaft now in use with multiple bearings and their housings, closely spaced, with a rubber sleeve fitted over them. These individual bearings require regular maintenance, and the failure of any one means disassembly of the entire roll.

The Aquatrol Expander, on the other hand, is not only trouble-free in principle but replacement of the rubber sleeve can be accomplished in a matter of minutes, it is said. The Aquatrol also obviates the need for considerable inventories of replacement bearing rolls which have heretofore been necessary. For additional information, contact Rodney Hunt Machine Co., Industrial Roll Div., Orange, Mass.

New Starter and Contactors For Low H.P. Application

Size 00 magnetic contactors and starters for low-horsepower light duty applications have been added to General Electric's 100 line of motor starters. Designed specifically for controlling conveyors, small pumps and fans, the size 00 starter offers about an 18 per cent price saving over the size 0 starter which might have been used previously for such applications.

The new starters and contactors incorporate all the features of the 100 line. Fast installation is made possible because of straight through wiring, clearly identified pressure-type terminals, keyhole slots and convenient knockouts for easy conduit connection. Maintenance is less time consuming because of snap-slide disassembly which permits inspection from the front of the starters without tools in less than one minute.

The straight-out-the-front disassembly means inspection and maintenance can be performed without extra space being left around the starter. Pushbutton and selector switch kits for field or factory installation give added flexibility for meeting specific applications.

Available for either 115 or 230 volts, the 00 starters and contacts are single, two- or three-phase with ratings from $\frac{1}{3}$ to 2 horsepower. General Electric Co., Schenectady 5, N. Y.

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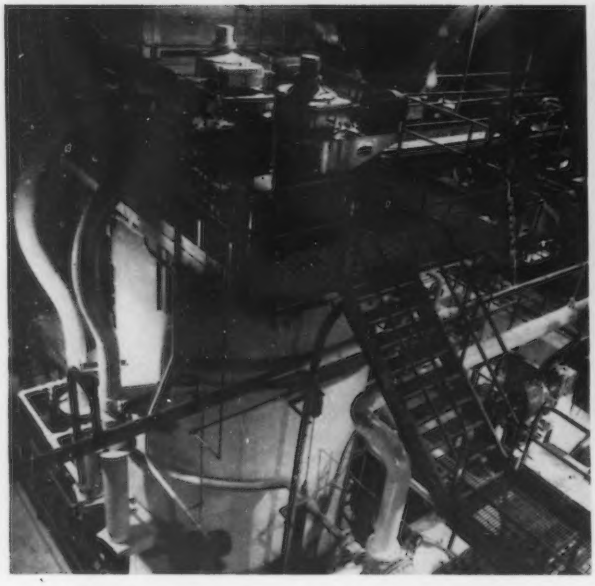

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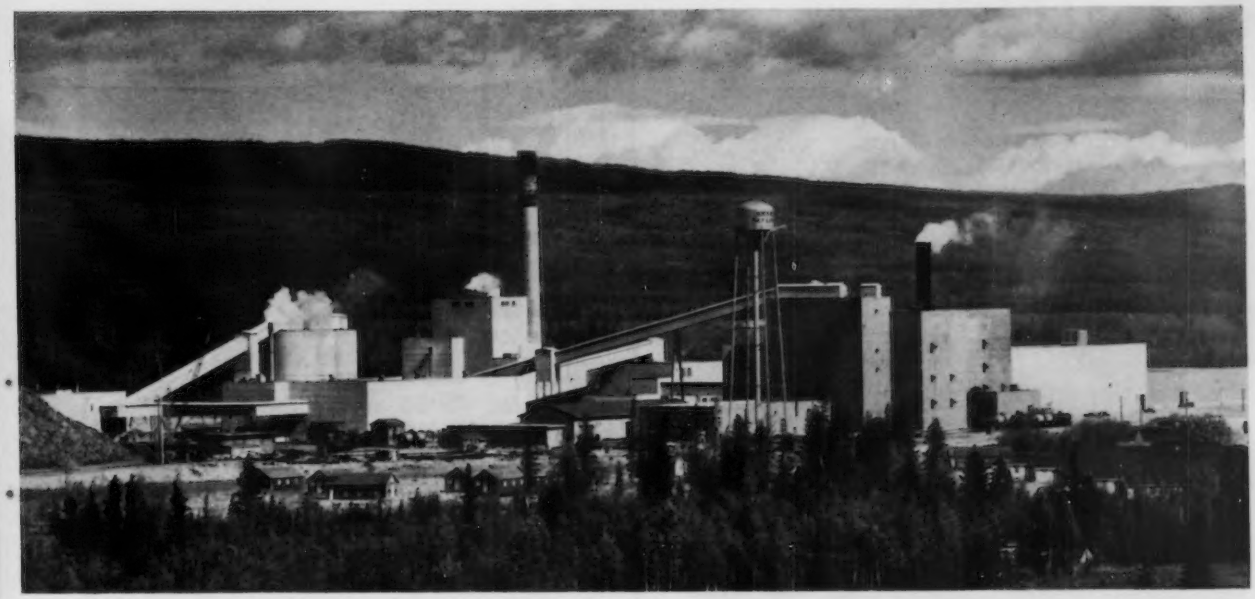

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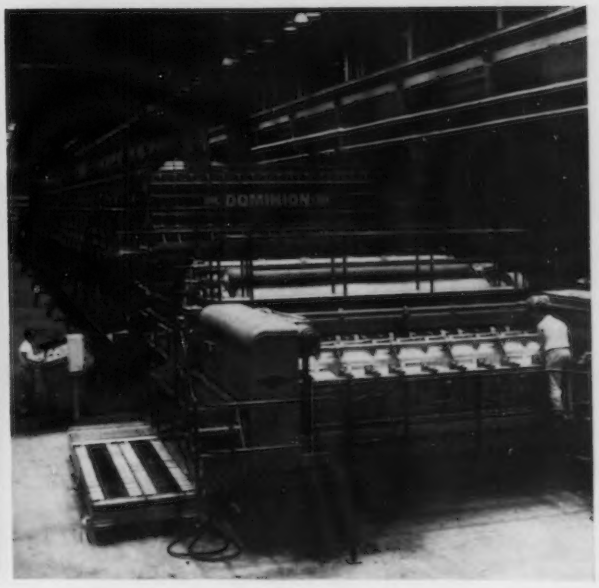

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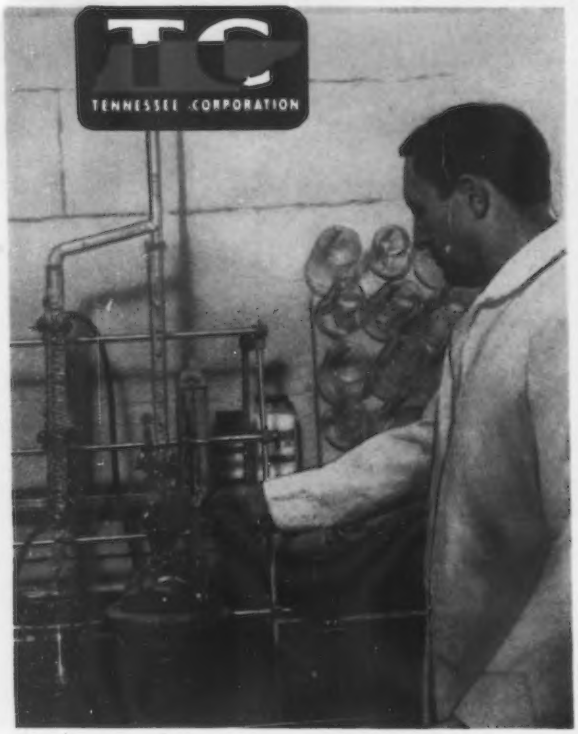

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Comments on Headbox Design Article

Messrs. H. A. Brewden and
B. Locking
c/o PAPER TRADE JOURNAL

DEAR SIRS:

I read with great interest your recent series of articles in PAPER TRADE JOURNAL August 1, 8, and 15 of this year, discussing some of the most recent developments in headbox design.

Although this series serves a worthy purpose in summarizing some of the recent substantial advances in the science and art of headbox design, I would be doing an injustice to a number of my colleagues in this field if I did not correct several confusing points in the series and also broaden the credit given to my part in the field.

You refer, in several places, to a paper of mine: "A Wide Range Pressure Inlet-Design and Operation," TAPPI 42, No. 12:429-40 (June 30, 1956) and the stock inlet described in this paper. I am afraid you have left the mistaken impression that I am solely responsible for the development described. In fact, the paper in question is a discussion of the design and engineering efforts of a group of my associates, specifically Messrs. G. I. Goumeniouk, A. J. Cirrito, Peyton March, Phillipe Coppin and myself. The nature of this group effort is clearly stated in my paper and in fairness to the number of people involved, the stock inlet described should not bear the name of any individual.

The discussion of distributors in the article of August 1 is confusing with respect to the distributor of Reference (8). On page 42 of this article you say:

"Reitzel, (8) later developed a one-sided inlet . . . similar to Figure 1A in principle . . .

Figure 1A, however, depicts a symmetrical type of manifold, rather than a single-ended manifold. This is an unfortunate misimpression of the inlet in question, as it is our feeling that the single-ended manifold is a significant improvement over prior symmetrical designs. The distributor system actually employed is illustrated clearly in Figure 22 of your article.

In connection with this distributor an additional reference not given in your work is U. S. Patent No. 2,894,-581 issued to G. I. Goumeniouk 7-14-59 (filed 3-26-57). This patent claims the single-ended distributor shown in your Figure 22 and other variations of the same idea, including, I suspect, the so-called "taper-flow distribution system" of Figure 17B of your article.

Nicolas Reitzel

Authors' Reply

Referring firstly to the misprint, Mr. Reitzel has pointed out this should have, of course, as all readers informed in the field will have realized, have read Reitzel (8) later developed a one-sided inlet . . . similar to Fig. 1B (not 1A) in principle . . .

With regard to Mr. Reitzel's description of to whom the credit for this design should go, the industry can be grateful to him for having clarified the issue. A copy of Goumeniouk's patent was not available when the paper was written.

With regard to the patent of Goumeniouk and Figure 17B, a glance at the dates below would indicate that Mr. Reitzel's is in error with regard to credit for development of the taper flow principle.

The relevant dates are:

Oct. 26, 1954. Canadian Patent 563,329, Filed.

Oct. 28, 1954. Canadian Patent 561,076, Filed.

Aug. 22, 1955. U. S. Patent 2,929,-449, Filed.

June 1956. Paper at CPPA giving the first description of the taper flow principle with tapered one sided manifold system having overflow to equalize the pressure.

1957. Gavelin type inlets operating.

March 26, 1957. U. S. Patent 2,894,581, Goumeniouk Filed.

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As Paper Modifiers

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Clipper Belt
Lacing Equipment

Covers latest belt lacing equipment and materials and contains descriptions and prices of various belt hooks, lacers, and cutters. Includes information on new special purpose belt hooks of stainless steel, rust proof (monel), and phosphor bronze; on lacer models available, from the rugged speed lacer to portable lacers to vise lacers; a new conveyor-corrugator belt lacer; and on both six and ten-inch Clipper belt cutters. Folder Number 100. Clipper Belt Lacer Co., Grand Rapids 2, Mich.

Chemical Resistance
of 3 Polyesters

Reports how three different polyester resins—bisphenol-A, isophthalic, and general-purpose—withstood a six-month immersion in various corrosive aqueous solutions at elevated temperatures. It is made up in two sections: (1) a 12-page detailed description of the test techniques and results of a three-month immersion period, and (2) a four-page supplement that includes tables and curves of the behavior of the three types of resins in the six-month period. Chemicals Division, Atlas Powder Co., Wilmington 99, Del.

High Pressure Flow
Indicators and Alarms

Describes flow rate measurement meters designed to operate at pressures up to 1500 p.s.i.g. Available in ½ inch, 1 inch & 1½ inch sizes to handle flow in ranges from a minimum of 1.5 g.p.h. to 50 g.p.m. Bulletin No. 132. Brooks Instrument Co., Inc., Hatfield, Pa.

Heavy Duty
Synchronous Motors.

Illustrates and describes Electric Machinery Mfg. Co.'s line of pedestal-bearing type, heavy-duty, synchronous motors. These motors are available at 600 h.p. and larger; speeds range from 1800-500 r.p.m.'s with 0.8 or 1.0 p.f. and operate on standard voltages, 50 or 60 cycle. Rotor and stator construction, are shown and many of the construction details are highlighted. 1 p. Bulletin 1100-PRD-253. Electric Machinery Mfg. Co., Minneapolis 13, Minn.

High Speed
Precision Balances

Describes and illustrates general purpose high speed precision balances, designed for small capacity industrial weighing operations of all types. The versatile Series "K" balances are available in three capacities—800 grams with 1/10 gram graduations—2000 grams with 1 gram graduations—and 4000 grams with 1 gram graduations. Dials reading in pounds, grains, or pennyweights can also be provided. Includes complete specifications and operating instructions for the Series "K" balances. Bulletin 3114. The Exact Weight Scale Co., 541 East Town Street, Columbus 15, Ohio.

Parallel Shaft
Speed Reducers

Describes redesigned and expanded line of "balanced design" parallel shaft reducers in 57 sizes, including 23 new sizes of single, double and triple reduction units are available in capacities up to 2,800 h.p. at high or low output speeds, and ratios up to 292:1. Includes full information for selecting the correct drive for every application. Rating tables contain thermal and mechanical h.p. ratings for each input and output speed. Load classes are shown for almost 250 driven machines. Overhung loads, extended shafts and outboard bearings, dimensions and actual ratios are included in additional tables. 36pp Book 2719. Link-Belt Co., Dept PR, Prudential Plaza, Chicago 1, Ill.

RE Series
Lightnin Mixers

Describes the new RE Series of top-entering Lightnin Mixers. The RE is a complete mixer with a solid drive shaft, which is coupled directly to the mixer shaft. Features include right angle drive, precision bevel gears, change gears, integral stuffing box and easy maintenance. Bulletin B-522 describes the REC closed tank mixers. Bulletin B-523 covers the REQ open tank line. Mixing Equipment Co., Inc., Rochester, N. Y.

Turbine Supervisory
Instruments

Includes description and specifications of GE's redesign of a TSI system that charts a permanent record of mechanical performance throughout starting and running periods. Describes the new system's ability to monitor vibration, shaft eccentricity, shell and differential expansion, speed and valve position. Two Bulletins. GEZ-3078. 12 pp. Exchange Plan For Turbine Supervisory Instruments. GEZ-3077, four pages, details credits allowed by G.E. for earlier TSI models when replaced by the new system. General Electric Co., Schenectady 5, N. Y.

Low-Densite Polyethylene
For Paper Coating

Describes a Tenite polyethylene formulation recently developed for the extrusion-coating of paper. Presents data on equipment, properties of coating and coating conditions. Termed Tenite Polyethylene 895P-60000 Natural, the resin has a nominal melt index of 3.5 a nominal density of 0.921, and uniform draw-down properties permitting coatings as thin as 0.2 mil. The material is also available in colors. Materials Bulletin No. 2. Plastics Division, Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co., Kingsport, Tenn.

Recommended Maintenance
Painting Systems

Covers selection and use of maintenance paints in the pulp and paper industry and describes various paint systems designed to withstand the moisture and chemical exposures of paper mills. 9 p. Booklet. Tropical Paint Co., 1246 West 70th St., Cleveland 2, Ohio.

Powrworker
Hand Trucks

Describes four low-lift platform models of Powrworker battery powered hand trucks. The trucks, with five inches of lift, are designed for fast horizontal movement of palletized materials. 8 p. 2-color Bulletin SS-777 Industrial Truck Division, Clark Equipment Co., Battle Creek, Mich. In Canada, J. H. Ryder, Ltd., 360 Evans Ave., Toronto 18, Ont.

Thermistemp
Thermister Probes

Describes three new YSI No. 400 series interchangeable probes, extension leads, and multiple channel switchboxes. Probes include a glass probe with a 10/30 ground glass joint which will allow the organic chemist to monitor distillation temperatures from his desk at distances of 10 feet or more from the distilling apparatus; a sharply pointed stainless steel tube, developed for the food industry as a convenient means of taking internal temperature of semi-solids, and 36-inch-long probe, of particular interest to soils specialists

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and to the food industry. 1 p. Brochure. Yellow Springs Instrument Co., Inc., Yellow Springs, Ohio.

Mechanical Power Transmission Equipment

Describes and illustrates complete line of mechanical power transmission equipment. Covers variable speed drives of both motion and stationary control types; conventional V-belt and Ultra-V belt drives; Timing Belt drives; flat belt pulleys; flexible and rigid couplings; adjustable motor bases; ball bearing pillow blocks, flange and take-up units; solid and split sleeve pillow blocks; cotton-card drives; cotton cleaner drives; bushings. Catalog 23103. T. B. Woods Sons Co., Chambersburg, Pa.

Useful Pumping and Hydraulic Data

Contains helpful facts on the cost of electrical pumping and is written with strong emphasis on practical data for the engineers' everyday use. Includes many useful charts and problem solving formulae; for example—facts on how to figure NPSH, Pump Efficiency, Mechanical and Electrical Equivalents, and a Pipe Friction Loss Chart. Also gives other informative reference items including a Weir Table, Orifice Charts of pipe and Friction Loss Charts. Bulletin EM-77. Peerless Pump, Hydrodynamics Division, 301 West Avenue 26, Los Angeles 31, Calif. or any Peerless branch or field office.

Pocket Encyclopedia

Is prepared in simple dictionary format, divided into four sections dealing with Paper and Paper Mill Terms, Graphic Arts Terms, Folding Carton and Boxboard Industry Terms and Ink Terms. Boasts 96 information-packed pages in its convenient 3½ x 6¼ inch size, and is attractively bound in rich velvet green embossed leatherette, gold stamped cover. It is a valuable reference source to all those interested in the paper, packaging, boxboard or graphic arts industries and to students, Trainees, salesmen, purchasing agents. "Pocket Encyclopedia of Paper and Graphic Arts Terms," is available for $1.00 postpaid direct from Thomas Printing and Publishing Co., Kaukauna, Wis.

Pulp and Paper Mill Equipment

Includes new line of pressurized and double disk refiners, as well as single disk refiners, laboratory equipment, starch cookers and other units of interest to the industry. Bulletin 183-A. 8 pp. Sprout-Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 3	Sept. 10	Sept. 17	Sept. 24	Oct. 1
1960	90.3r	73.2	93.3r	93.6r	95.3
	Sept. 5	Sept. 12	Sept. 19	Sept. 26	Oct. 3
1959	96.2	78.0	98.5	97.1	97.4

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.0	97.0	97.7	96.2	81.3‡	91.8‡	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	92.2

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	91.4	95.5	98.4	91.1	86.5	92.1	94.1
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	92.2	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Sept. 3	Sept. 10	Sept. 17	Sept. 24	Oct. 1
1960	94	70	93	93	93
	Sept. 5	Sept. 12	Sept. 19	Sept. 26	Oct. 3
1959	97	76	98	97	97

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	93	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association*

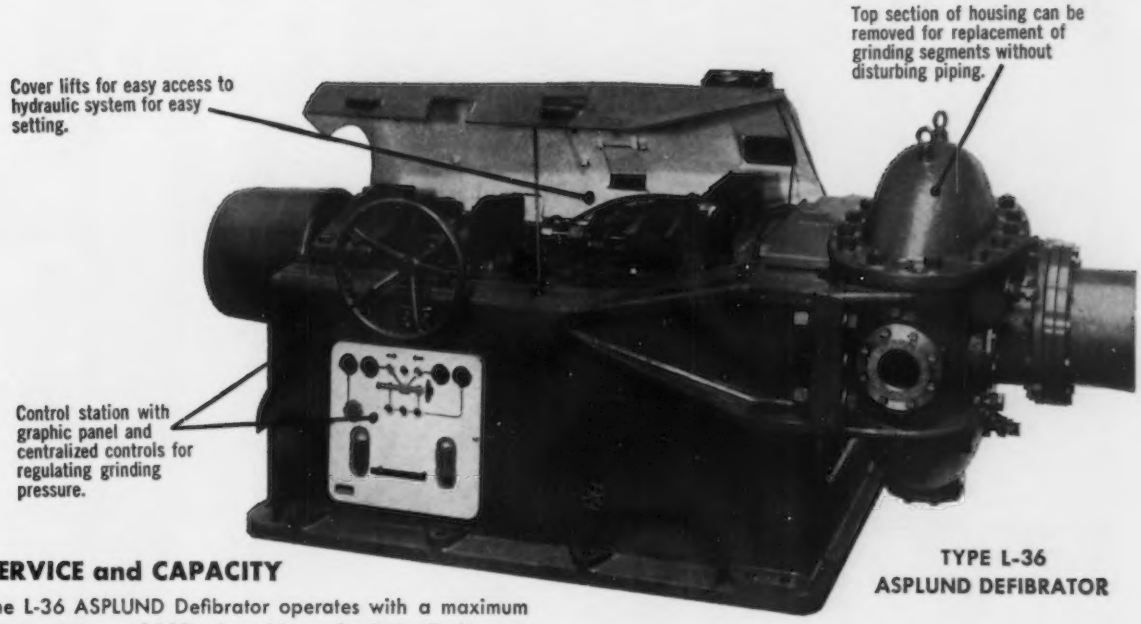
SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Oct. 1, 1960	LAST WEEK ENDING Sept. 24, 1960	CUMULATIVE TO DATE Jan. 1, 1960 to Oct. 1, 1960
% Activity	93%	93%	91%
Total	324,667	321,633	12,026,542
Containerboard—Domestic Use	169,877	168,658	6,210,197
Liner	113,078	115,477	4,160,237
Corrugating Material	50,952	48,418	1,851,500
Chip & Filler Board	5,847	4,763	198,460
Boxboard—Domestic Use	95,003	97,045	3,713,846
Folding	58,286	57,883	2,222,127
Set-Up	10,228	11,570	424,610
Special Food Board	26,489	27,592	1,067,109
Other Paperboard	59,787	55,930	2,102,499
Containerboard Type	29,198	26,533	1,003,876
Boxboard Type	30,589	29,397	1,098,623
Total Orders			
Received	334,749	312,753	
Unfilled End of Week	429,110	411,961	

FOR CONTINUOUS PULPING, THE NEW *Asplund* L-36 DEFIBRATOR

offers

- Close control of grade and uniformity of pulp
- Precise adjustments easily made with hydraulic controls
- Continuous service with low maintenance


Top section of housing can be removed for replacement of grinding segments without disturbing piping.
Cover lifts for easy access to hydraulic system for easy setting.
Control station with graphic panel and centralized controls for regulating grinding pressure.

TYPE L-36
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SERVICE and CAPACITY

The L-36 ASPLUND Defibrator operates with a maximum steam pressure of 180 psi, and is used principally for producing fiber for hardboard, insulating board, and roofing felt. It is conservatively rated at 80 tons of hardboard fiber per day. It is also used for semi-chemical pulping and asphalt dispersion with capacity up to 150 tons per day. The size of the Defibrator motor in either case is between 400-600 HP.

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Solidly built for continuous heavy duty service, with double acting thrust bearings and one radial bearing, all lubricated through a circulating oil system by means of a pumping unit with safety controls. Two 36" discs, one rotary and one stationary have replaceable segments; segment holders, housing, and top cover are all stainless steel. The shaft in the main stuffing box is protected from wear by a stellited sleeve.

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Rotary feeders, screw feeders, and digester units are available for use with existing equipment, or coordinated for use with the L-36 ASPLUND Defibrator. Size of feeders and digester units depends on the type of process, the volume to be handled, and the capacity required.

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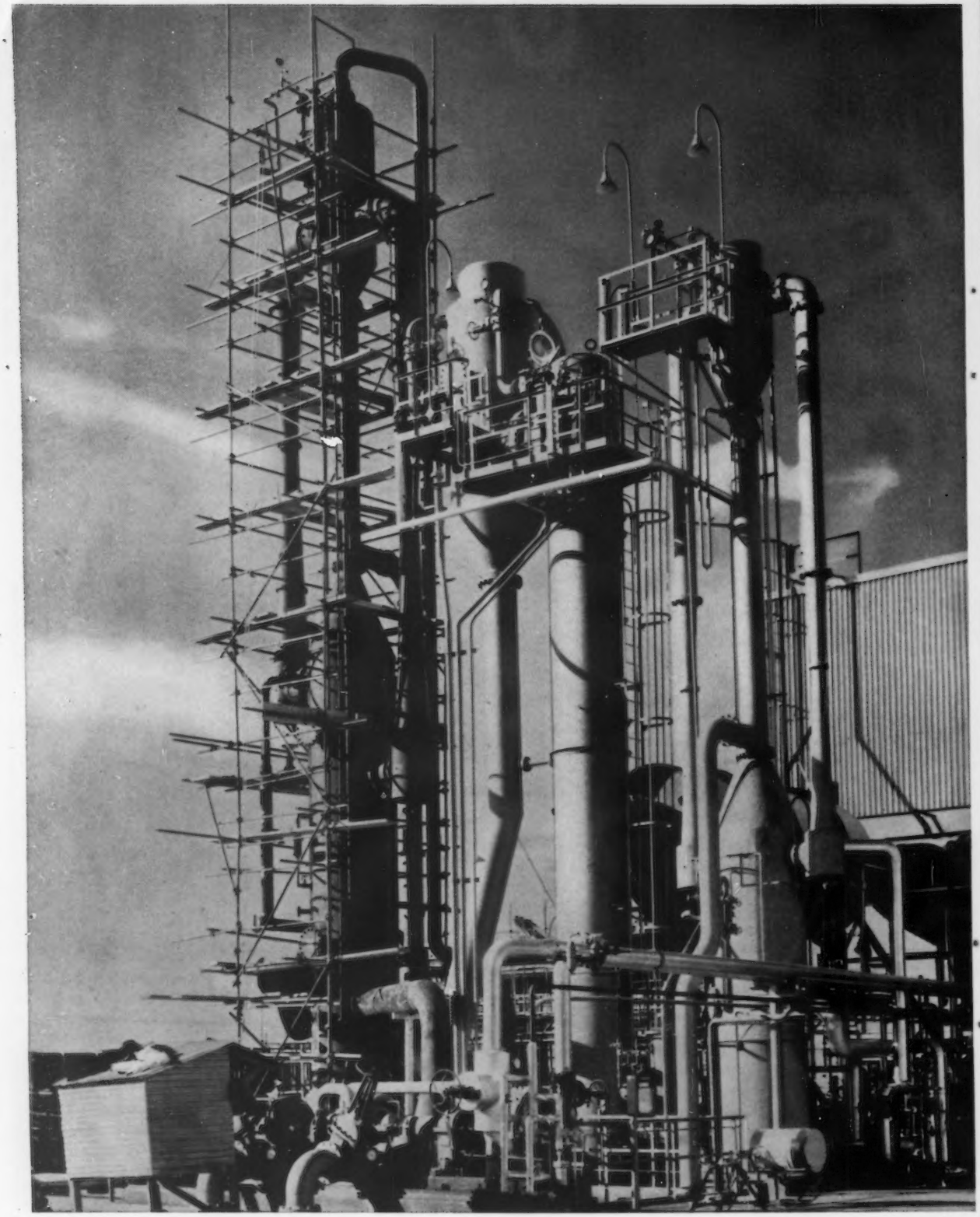
When you are planning to add pulping facilities or to modernize, we will be glad to work with you in detail, toward layout and equipment best suited to your requirements.

AMERICAN DEFIBRATOR, Inc. CHRYSLER BUILDING NEW YORK 17, N. Y. West Coast: A. H. Lundberg Mercer Island, Washington



PETROTHENE® RESINS FOR FILM AND COATING. Capacity of this U.S.I. plant at Houston, Tex., is being expanded to 200 million pounds of polyethylene per year. U.S.I. also produces 100 million pounds of polyethylene per year at its Tuscola, Ill., plant complex.

U.S.I.'s MANY PLANTS PROVIDE AMPLE SUPPLIES OF PAPER CHEMICALS

for pulping
for converting
for packaging

From chlorine and caustic for bleaching pulp—to polyethylene resins for coating paper and board—U.S.I. is a dependable source of chemical products for the paper industry.

With two chlorine and caustic plants at Huntsville, Alabama—conveniently located in relation to a large number of pulp and paper mills—U.S.I. can offer rapid delivery and prompt technical assistance on these products. Liquid chlorine is available in tankcars. Commercial grade 50% caustic soda is shipped in tankcars, tank trucks, barges.

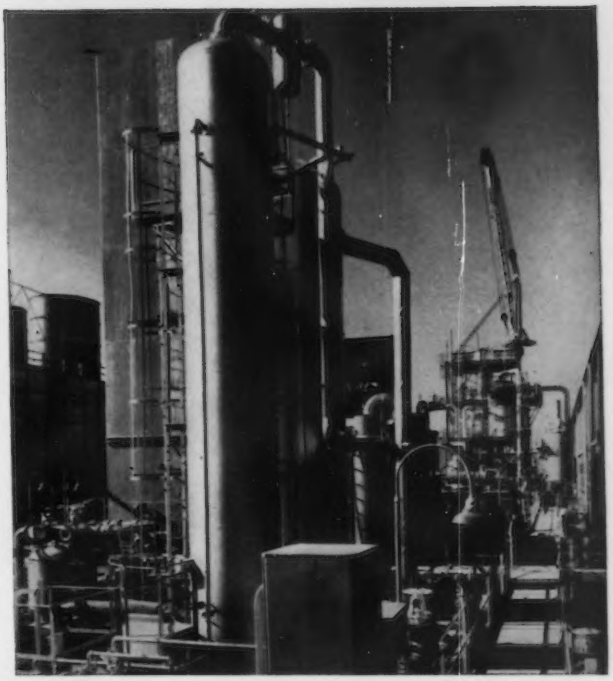
Two other important paper chemicals—sodium peroxide and ammonia—are also available from U.S.I. Sodium peroxide is produced at Ashtabula, Ohio; ammonia at Tuscola, Illinois.

With U.S.I.'s latest polyethylene resin plant expansion at Houston, Texas—and facilities at Tuscola, Illinois—the company's total polyethylene capacity will soon reach 300 million pounds per year. This will make U.S.I. the world's second largest producer.

As part of the company's program to assist polyethylene customers, U.S.I. has come up with significant developments in resins for the paper industry. For example, PETROTHENE® 205-15—one of four new U.S.I. resins for paper coating—exhibits greater greaseproofness at any given coating weight than other resins of similar melt index and density. All four resins are tailored for high adhesion, and reduced neck-in, smoking and polymer build-up at the die.

U.S.I. has also pioneered the new technique for producing crystal-clear cast polyethylene film, and has just released new resins for this purpose. More and more converters are packaging with polyethylene now that the clarity problem has been solved, because of the enhanced shelf life which this film gives to paper products.

U.S.I. has a pulp-to-package interest in the paper industry's growth. To take advantage of our research and development work, large capacity, prompt technical service, write or call your nearest U.S.I. sales office, or company headquarters in New York.



AMMONIA is made at this U.S.I. plant at Tuscola, Ill. Polyethylene resins are also produced at Tuscola by U.S.I.

CHLORINE & CAUSTIC SODA. One of the two U.S.I. plants at Huntsville, Ala., producing these basic chemicals for the pulp and paper industry.

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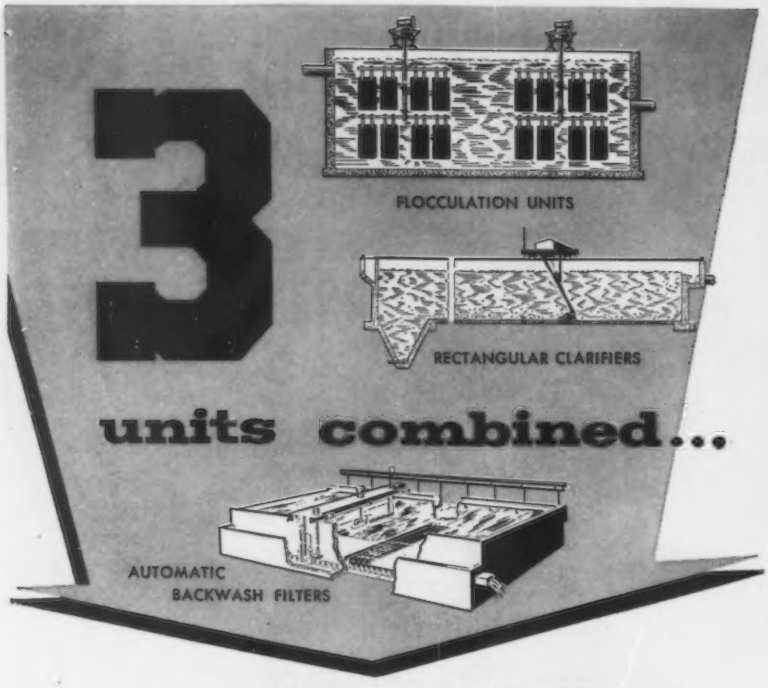
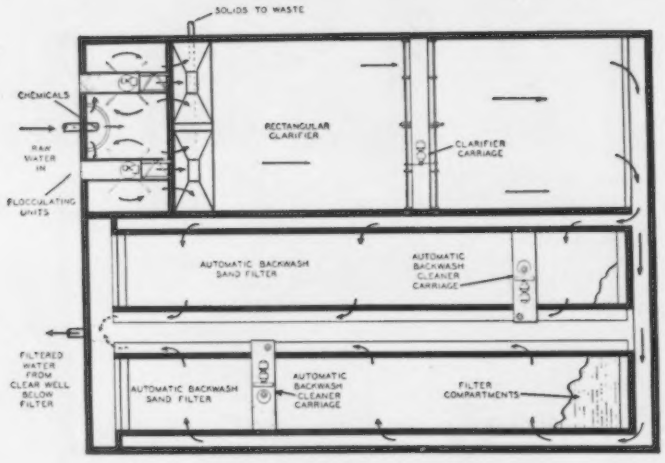
CHLORINE • CAUSTIC SODA • SODIUM PEROXIDE • AMMONIA • PETROTHENE® POLYETHYLENE RESINS



. . . for COMPLETE WATER TREATMENT



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For paper mill water supplies, the Hardinge equipped water treatment plant is available in unit sizes of from 1 M.G.D. to 5 M.G.D. Flocculation, clarification, and filtration equipment-combined in modular units and sized to your requirements for a continuous supply of high-quality water. Can be furnished complete with automatic plant controls.

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NEWS OF CONVERTERS

Standard Packaging Elects Speidel Vice President

Glen E. Speidel has been elected vice president of Standard Packaging Corp.

Mr. Speidel will be in charge of Standard's Consumer Products Group, which includes Fonda Container Co., St. Albans, Vt., Royal Lace Paper Division, Ft. Wayne, Ind., and Normandie Cup Division, Alexandria, Va.

These three divisions of Standard Packaging produce paper plates, paper cups, paper and plastic place mats and doilies, paper cans, prepackaging trays, decorative paper and plastic shelf edging, shelf and drawer lining paper, and other paper specialties.

Before being elected to his new post at Standard, Mr. Speidel was president and chief executive officer of the Kalamazoo Sled Co. and the Kalamazoo Furniture Co., manufacturers of sleds, snow toys, summer and casual furniture.

Bemis Bag Announces Managerial Changes

Bemis Bag Co., St. Louis, Mo., has announced various managerial changes within the central operations.

S. M. Spencer has been appointed manager of the St. Louis bag plant and sales division, and S. D. Robey has been appointed manager of the Omaha plant and sales division.

Mr. Spencer replaces Philip C. McGrath, who has been with Bemis for over 47 years and has served as manager of the St. Louis plant and sales division since 1953. Until his retirement next January 31, Mr. McGrath will be a special assistant to the company's director of sales in the St. Louis general offices. Mr. Robey replaces Mr. Spencer at Omaha.

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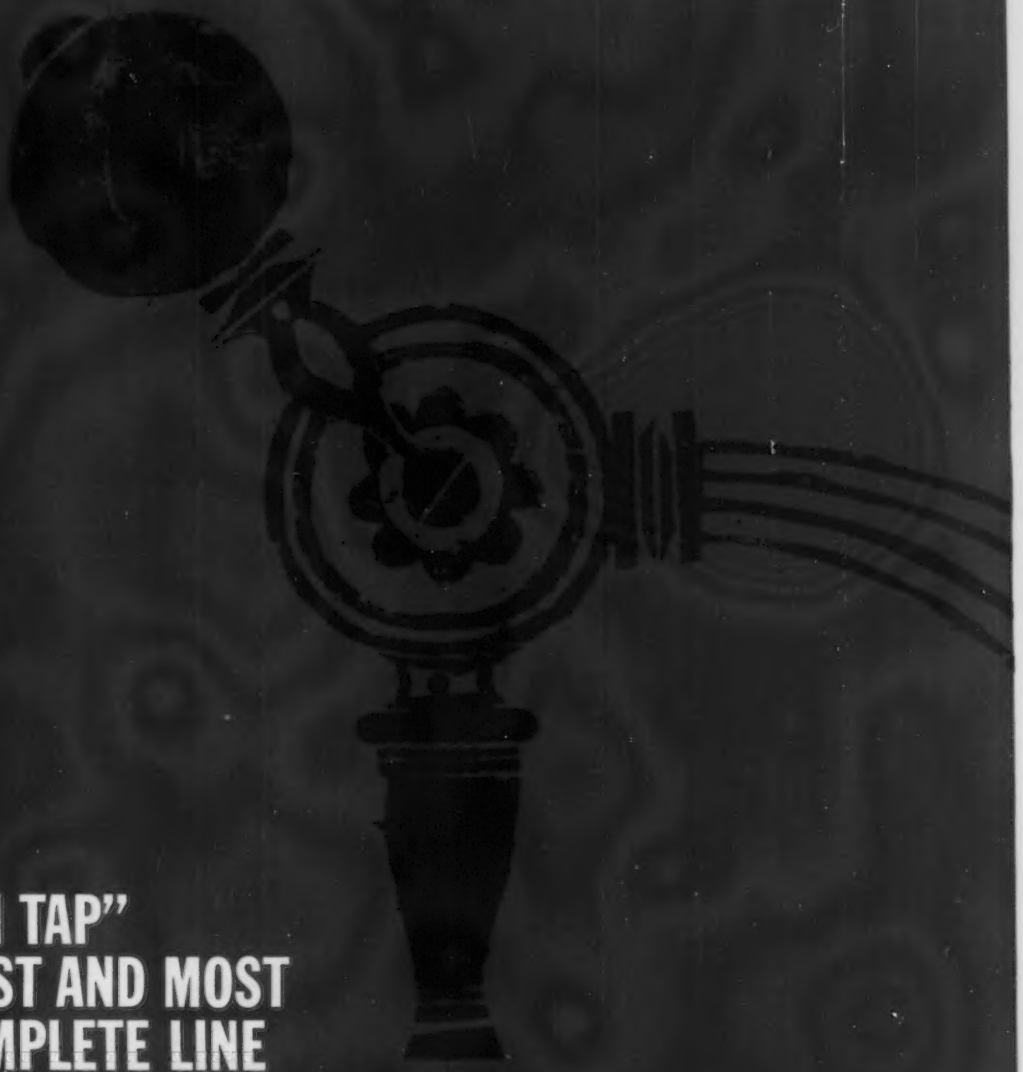

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These eleven new paper dyes in **liquid,** not powdered, form were developed especially for modern, "push-button," continuous or batch coloring operations. • Both the basic dyes and the Helmercos for tinting whites mix easily and efficiently. They're measured by volume —**no weighing, no dusting.** And tests prove all eleven dyes provide high tinctorial strength, uniform color, freedom from specking. Ideal for **all grades** in which these dyes are used! • Here's the perfect way to **cut** production time...and **end** the justified complaints of personnel. You can get complete data on all dyes...**now**...from your Cyanamid representative, or from Cyanamid direct. Contact **today:** • American Cyanamid Company / Dyes Department / Bound Brook, N. J.

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METHYL VIOLET 4BPX LIQUID
BASIC VIOLET 6BN LIQUID
BISMARCK BROWN RX LIQUID
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GREEN MX LIQUID
FUCHSINE HO LIQUID
HELMERCO* BLUE M4R LIQUID
HELMERCO* BLUE M4G LIQUID
HELMERCO* BLUE MGW LIQUID

*TRADEMARK

APPA Reports on

How Our Industry Is Doing

Total paper and paperboard production in the first nine months of 1960 reached 25.9 million tons, two per cent above the previous high of 25.4 million tons established in the first three quarters of 1959, according to APPA. Paper, at 11.6 million tons, showed a four per cent gain above 1959; board rose by about one per cent. However, output of construction paper and board, at 2.4 million tons, was five per cent below the 1959 rate.

Paper and board imports, mainly newsprint from Canada, showed a moderate gain over last year, but exports were up considerably. Domestic consumption of paper and board (as measured by production plus imports less exports) totaled 29.3 million tons (a rate of 39 million tons per year) for a gain of about three per cent.

Among the various paper grades, major gains in output took place in the printing papers. Total printing paper production ran better than five per cent ahead of the 1959 rate as a result of important gains in activity in the printing and publishing industry. The largest gains were observed in the coated papers, but the other printing grades also showed some increases. Growth continues in sanitary paper output during 1960. Output of coarse papers showed little change from the 1959 rate. Most of the board grades showed moderate gains in production. However, special food board, was about 10 per cent ahead of the 1959 rate.

Output Behind Consumption

Output of both paper and paperboard during 1960 has been running a little below the level indicated by the rate of activity in its major end-use markets. This suggests the possibility that inventories of paper and paper products are being depleted in the distribution channels and that consumption of paper and paperboard is presently running ahead of the rate of production. This pattern is similar to that shown for the production of finished goods as related to the production of raw materials. According to the Federal Reserve Board, finished goods production has been running consistently ahead of raw material production throughout 1960.

Wood Pulp Continues Gain

Wood pulp continued to gain in importance as a raw material in the manufacture of paper and board; new supply of pulp in the first three quarters of 1960 was about three per cent above the record 1959 highs. Domestic wood pulp sources are continuing to grow in importance; imports of wood pulp in this period were slightly below last year's totals, while exports are nearly double the 1959 rate.

The sharp increase in exports reflected both the prosperity in Europe and the opening of a new European-owned market pulp mill in the United States. Total domestic wood pulp production ran above the 25 million-ton per year level, which was about five per cent ahead of the 1959 record. These high rates of wood pulp production have been matched by comparable gains in consumption of pulpwood. Pulpwood consumption is presently running above the 40 million-cord per year rate.

Sales and Profits

Manufacturers' sales of paper and allied products were at the $12½ billion per year rate during the first three quarters of this year, which was about three per cent ahead of sales in the same 1959 period. Data on sales and profits of corporations in the paper and allied products industry for the first half of 1960 showed sales two per cent ahead of the first half of 1959, and total profits after taxes unchanged. The rate of return on invested capital averaged 8.8 per cent, which compares to 9.8 per cent for all manufacturing and 9.6 per cent for total non-durable goods.

Future Growth

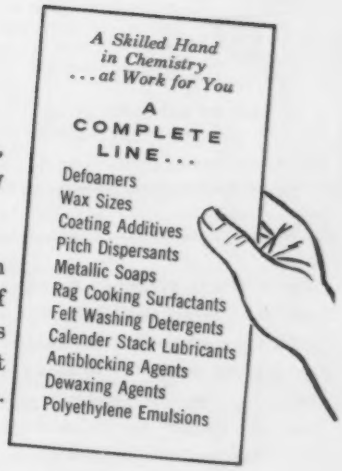
Future growth in demand for paper and paperboard products will depend, first upon the growth of the total economy and, second, upon the ability of the industry to develop new markets for its products. Daily capacity to produce paper and paperboard rose by an estimated four per cent during 1960. Plans presently underway call for capacity to increase by another five per cent during the 1961-1962 period. Capital expenditures for 1960 as a whole are estimated at $740 million, compared to $630 million in 1959 and $578 million in 1958.

"Quick! Close the door! Everything's gone haywire at the mill."

make cleaner paper with NOPCO® DEFOAMERS backed by Nopco know-how

One of the causes of a bad run of paper can be foam. Bubbles that carry fiber, size or color on their surface burst and leave light spots. Those that carry filler or dye leave dark spots. Either way, the sheet won't pass inspection.

Many variables contribute to foam formation. Since each mill has its own distinct foaming problems—because of differences in equipment, type of water, chemicals used and running speeds—it takes a wide range of defoamers to meet them all. Let your Nopco specialist work with you to develop the best system for your conditions. Write for specific information and for literature.



NOPCO CHEMICAL COMPANY
60 Park Place, Newark, N.J.

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Mexico • France
Manufacturing Licensees Throughout the World

CHAS. T. MAIN, INC.

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PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

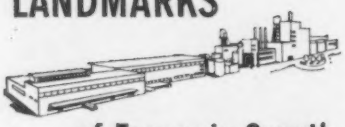
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

●

BOSTON, MASSACHUSETTS

CHARLOTTE, NORTH CAROLINA

PRODUCTIVE LANDMARKS



of Economic Growth

Rust has designed and constructed plant facilities increasing pulp and paper production, Ask for details.

THE RUST ENGINEERING CO.

PITTSBURGH 22 • BIRMINGHAM 3

Stadler Hurter

International Ltd.

Engineers • Designers • Consultants

Specializing since 1923 in all phases of design, modernization and expansion of pulp and paper mills from forest to finished product.

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NEW YORK • MEXICO CITY • PARIS • ZURICH

PAPER TRADE JOURNAL is always mailed on Friday and should be received in most parts of the country early in the week. If there seems to be undue delay in receiving your copy, we suggest that you write to your local postmaster, with a copy to the postmaster at East Stroudsburg, Pa., where we mail and a copy to us.

Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§890.00/ —	§880.00/ —	§890.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡152.00/160.00				§157.50/ —
Kraft, Blchd. Hdwd	152.00/ —		140.00/ —		
Kraft, Semi-bleached.	140.00/145.00				
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'nd		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED OCTOBER 4

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	8.25/8.00
3	7.75/7.00	$7.50/7.25	$7.50/7.00	7.75/7.00
4	7.00/6.25	6.50/6.25	6.50/6.25	6.50/ —
5	6.25/5.75	6.00/5.75	6.00/5.50	6.00/5.75
6	5.75/4.75	5.25/5.00	5.25/5.00	4.25/3.75
7	4.75/4.00	4.50/4.00	4.75/4.00	3.50/ —

WASTE PAPER MARKET

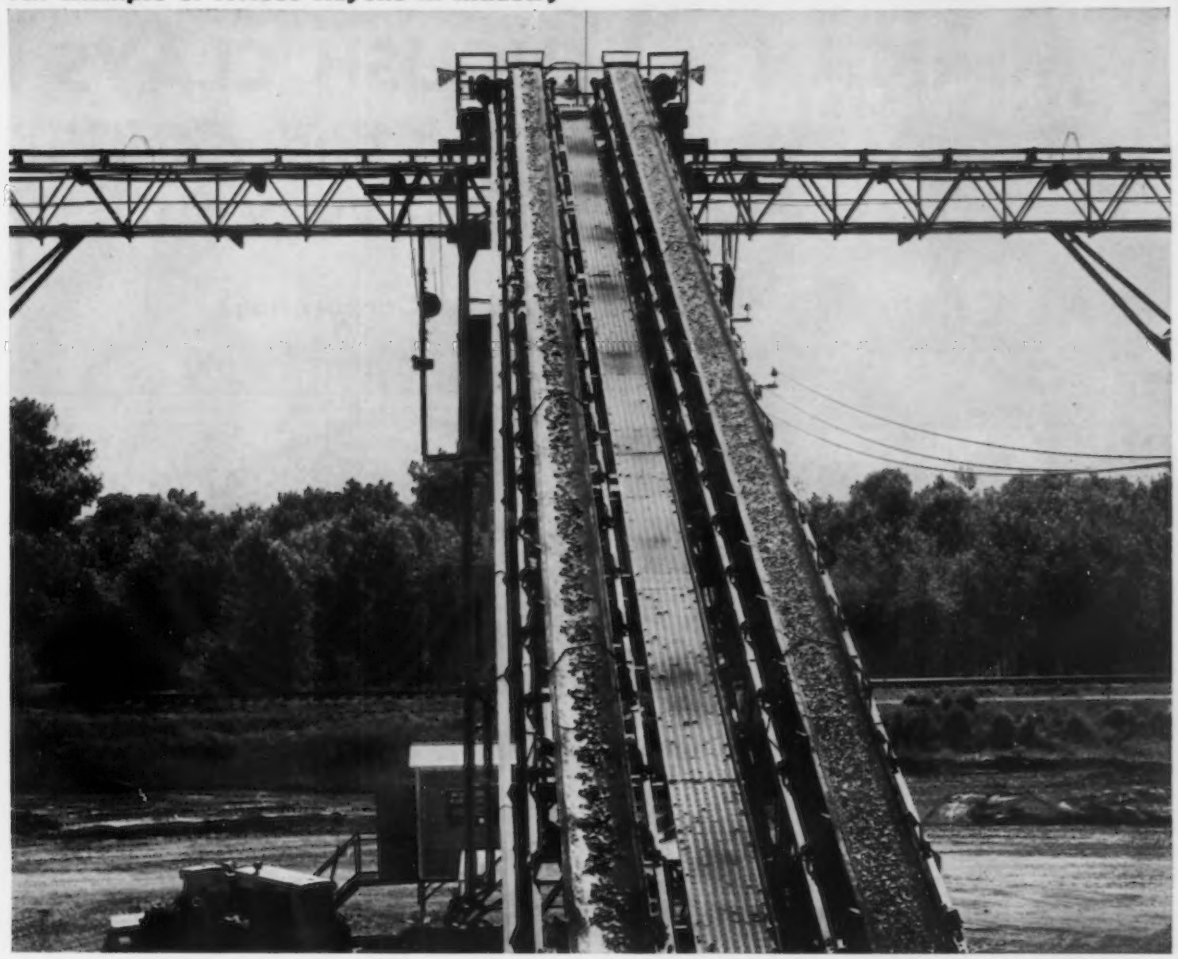
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Oct. 10	Oct. 10	Oct.	Oct.
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	18.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	20.00/ —	20.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ 37.50	35.00/ —	35.00/ —
(Semi-chem. medium)	47.50/ —	40.00/ 47.00	— / —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 65.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 70.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	23.50/ 27.50	15.00/ —	32.50/ 35.00
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	110.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	42.50/ 45.00	50.00/ 57.00	45.00/ —	40.00/ —
Manila Tab. Cards	62.50/ 65.00	60.00/ 70.00	65.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 35.00	32.50/ 37.50	40.00/ —	27.00/ —
White Ledger	45.00/ 50.00	47.50/ 52.50	50.00/ —	85.00/ —
Mixed Book & Mag.†	— / —	— / —	12.50/ —	— / —
No. 1 Books‡	16.50/ 19.00	22.00/ 24.00	27.50/ —	10.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

An example of Avisco Rayons in Industry



Now, stronger, lighter-weight belts with Avisco XL-I rayon

Because of fabrics made from Avisco XL-I rayon fiber it is now possible to engineer stronger, lighter-weight belts.

Compared to the traditional fiber, fabrics of XL-I rayon have up to 60% greater tensile strength and 3 to 5 times the fatigue life.

XL-I rayon adheres without predipping. Flex characteristics are excellent. XL-I fabrics trough well, conform better to pulleys and rollers, readily absorb starting and shock loads. Their lighter weight requires less power for starting and running.

For help in improving your product with Avisco XL-I rayon reinforcement, send in the Quick Reply Coupon.

QUICK REPLY COUPON 3-8

Industrial Merchandising Division
American Viscose Corporation
350 Fifth Avenue, New York 1, N. Y.

Please contact me about Avisco Rayons for use in the following application:

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Name_____

Company_____

Address_____

City_____ Zone_____ State_____

AVISCO® RAYON

AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, N. Y.

AMERICAN AND ENGLISH CLAYS

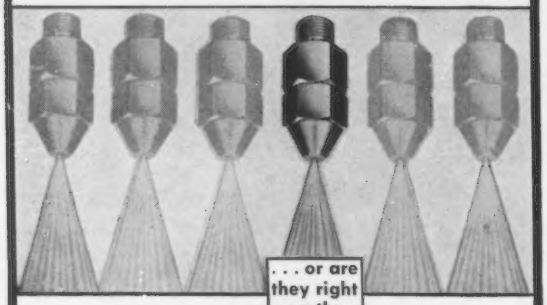
FOR ALL PAPER MAKING PURPOSES

ANGLO-AMERICAN CLAYS CORP.

(Formerly: English China Clays Sales Corporation)

6 East 45th Street, New York 17, N. Y.

Are the SPRAY NOZZLES you use in the grey zones . . .

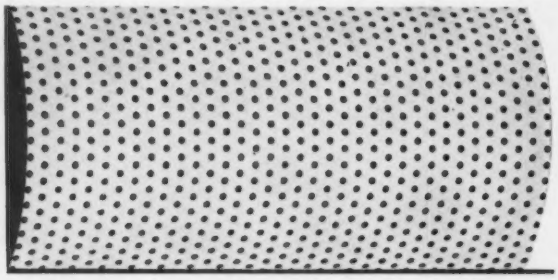


. . . or are they right on the beam?

Like an electronic system, a spray nozzle system can be *tuned* for maximum performance. To do this select spray nozzles that *exactly* fit the system needs . . . in terms of capacity, spray characteristics and materials. The use of Spraying Systems spray nozzles keeps spraying installations out of the costly grey zones. The reason: you have a choice of over 12,000 *standard* nozzle types and capacities to match the nozzles exactly to your need.

FOR PROOF . . . write for Catalog No. 24.

SPRAYING SYSTEMS CO.
3220 Randolph St. • Bellwood, Ill.



Perforated Screen Plates

to fit all types of centrifugal and pressure screens SHARTLE TRIMBEY COWAN APMEW IMPCO and others all types of metal

Fitchburg Screen Plate Co., Inc.

301 SOUTH STREET FITCHBURG, MASSACHUSETTS

Made at National Perforating Corp. — a subsidiary

Another Plant To Serve You

SHIP US IN KALAMAZOO

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DRYING...
PAPERS • COATINGS
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It will pay you to investigate the efficiency and economy of the new RED-RAY Type "H" Burner, latest development of RED-RAY infra red drying experience.

Write for further information to:

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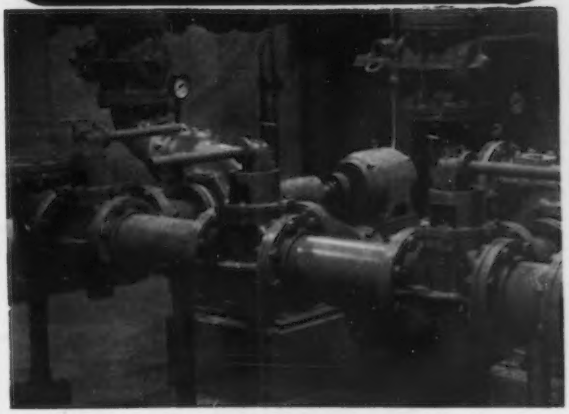
318 CLIFF LANE • CLIFFSIDE PARK, N. J.
Tel.: WHitney 3-1000

DeZurik Valves—
2-way,
3-way or
4-way—
THE finest PAPER MILL
VALVES YOU CAN USE !



In straight-way or multi-port styles,
DeZurik Valves give you exactly
the advantages you want!
They operate easily—every time!
They shut dead tight. They're completely
free from constant, expensive maintenance.
And they last longer, too!

Write for details and recommendations

DeZURIK
CORPORATION
SARTELL, MINNESOTA

PAPER TRADE JOURNAL

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HELP WANTED—$1.50 (6 words to line). Minimum charge $5.00.
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FOR SALE—$1.50 a line. Minimum charge $5.00.
WANTED—$1.50 a line. Minimum charge $5.00.
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Classified advertising space may also be purchased at $8.00 per single column inch. All classified advertisements are payable in advance.

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Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 49 West 45th Street, New York 19, N. Y.

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$5,000 to $50,000

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Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.
PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES
6 East Monroe, Chicago ANdover 3-1970
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Help Wanted

RESEARCH CHEMIST
WOOD TECHNOLOGIST

Large, modern and progressive integrated paper company in Maine has immediate opening for a technical graduate to do basic pulping research. Extensive industrial experience not necessary but adequate training in required chemistries and wood fibre technology essential. Research areas include raw material, pulping, bleaching and refining. Applicants must be capable of formalized experimentation, critical data analysis and good report writing.

Research facilities are excellent, good opportunity for advancement, pleasant community location with easy access to recreational areas for hunting, fishing, skiing, etc.

Send complete resume to
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care Paper Trade Journal
0-24

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PAPER MEN

• PRODUCTION
• SALES
• MANAGEMENT

Find the job—at Cadillac

In all phases of the Paper, Container and Packaging Industries, through Cadillac the applicant has a choice of the finest available positions.

Find the man—at Cadillac

A substantial number of qualified men are now listed with us and are available almost immediately.

Whatever your requirements, contact us in complete confidence and without obligation.

FRED J. STEFFENS
Personnel Consultant to the Paper Industry (Member Tappi)

CADILLAC ASSOCIATES, INC.
29 East Madison Bldg. Chicago 2, Illinois
Financial 6-9400 0-17

ENGINEERING OPPORTUNITIES

We are a fast-growing paper manufacturer located in northeastern Wisconsin. Our engineers handle interesting work with a lot of variety and plenty of opportunity to use their own discretion and judgment. Because of our rapid growth, we do not have time to increase our engineering staff by hiring new graduates and training them. We are interested in recent graduates but we also want to find experienced men who can produce quickly. If you are an ambitious engineer in either category and want to get ahead faster and farther than your present job permits, this may be just the opening you are looking for. We need qualified men in the following fields:

MECHANICAL ENGINEERS ELECTRICAL ENGINEERS
CHEMICAL ENGINEERS DRAFTSMEN

In addition to excellent starting salaries, we offer a well-rounded employee benefit program with group life and group hospital and surgical insurance paid for by the company and an outstanding profit-sharing retirement plan.

If you are interested, please write us, giving your complete personal and business history, which will be held in strict confidence.

FORT HOWARD PAPER COMPANY
GREEN BAY, WISCONSIN 0-17

TECHNICAL GRADUATE

Midwest specialty mill has opening in Technical Department for man with at least 3 years of paper mill experience. Job will entail close contact with production in process control and product development. Excellent benefit program. Paper School graduate or equivalent. Send reply to Box 60-200 care Paper Trade Journal.
0-17

WANTED

Experienced order clerk, male or female, for paper export firm. Knowledge of Spanish useful but not essential. Write giving past business experience to Box 60-194 care Paper Trade Journal. 0-24

WHEN REPLYING to advertisements containing box numbers, please mention that box number in your address. The figures in the lower right hand corner of advertisements are NOT box numbers,—they signify the expiration date of that particular insertion.

ROSS PAPER MACHINERY CO.

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Cable Address: "JACKROSS Newark: N.Jer" HUMBOLDT 4-8880

CANADA—903 DANFORTH PL., BURLINGTON, ONTARIO SOUTH—P. O. BOX 2065, MOBILE, ALABAMA

SUPPLIERS OF PAPER MACHINERY TO THE WORLD — RPM

BAG MACHINERY
1—S&H 3½" to 10¼" face; 6" to 13" tube pull

BAG MACHINERY—MULTI-WALL
1—S&W 1 to 4 ply tuber; PV, SOM, & POM; 10" to 24" face; 22" to 43" pull; w/15 h.p. VS drive

BEATERS
2—3000# Downingtown 60" x 67" roll; like new

CALENDER STACKS
1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1— 96" B-C 6 Roll—heavy duty
1—108" B-C 5 roll
1—104" B-C 8 roll
1—115" B-C 7 roll
1—124" Downingtown 5 roll

CHIPPERS
1— 96" Murray 6 knife; A-F Brng

COATERS
1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

COMPLETE PAPER & BOARD MACHINES
3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Trim Fourdrinier paper machine
1—B-C 100" 7 cyl. Board Machine Complete
1—M & W 72" Trim Yankee Fourdrinier
1—Rice Barton 84" Fourdrinier

CYLINDER MOLDS
2— 63" face x 36" dia w/rubber couches
1—104" face x 36" dia
1—107" face x 48" dia; A-F Brng
8—114" face x 36" dia. w/ rubber couches
8—124" face x 36" dia w/rubber couches
1—131" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

CYLINDER WET ENDS
1—Single cylinder; 99" face x 48" dia.
1—114" 7 cyl. Wet End, complete through main presses
1—124" 7 cyl. Wet End, complete through main presses

DRYERS—HYDROSTATICALLY TESTED

24" Dia.:
39— 46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face; 2—46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
9— 75" face w/gears & bearings
26— 76" face; complete section
9— 76" face w/gears & bearings
2— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
30— 84" face; complete section
18— 90" face; complete section
9— 92" face; complete section
1— 96" face
1—138" face
10—160" face

42" Dia.:
23— 76" face; complete section
46— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia.:
57— 46" face; chrome plated
12— 82" face; complete section
5— 84" face
34—106" face w/gears & bearings
2—110" face w/gears & bearings
10—123" face w/gears, frames & bearings
1—128" face

DRIVES ENCLOSED RIGHT ANGLE
1—Beloit 65 h.p. Ratio 2.88 to 1
3—Jones 65 h.p. Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1

EMBOSSERS
1— 80" Hudson Sharp; A-F Brng
2— 62" Textile Machinery Co., w/drives

EXTRACTOR ROLLS—DOWNINGTOWN
2—139" face x 24" dia; A-F Brng

FELT GUIDE
1—New Nash Wet Felt Guide, Style 535RH

FLAT SCREENS
1— 4 plate Tailing Screen
2— 12 plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

INLETS & HEADBOXES
1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll; SS lined

JORDANS
2—Appleton #1 w/A-F Brng
1—Horne w/A-F Brngs
4—Shartle Miami #2 w/A-F Brngs
1—Jones Midget—Used 2 months

MOTORS 3 PH 60 CYCLE
1—100 h.p. GE; 440 v; 695 r.p.m.
1—250 h.p. West. syn. 440V., 450 r.p.m.
1—300 h.p. West; 2200 v; 503 r.p.m.
1—350 h.p. GE; 2200 v; 720 r.p.m.: Synch

PAPER MACHINE DRIVES
1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT
1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen, 5 ft x 14 ft.

PUMPS—OPEN IMPELLER
1—Shartle 10 x 20 Duplex
23—Centrifugal Stock and Water Pumps

REELS
1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

REFINERS
2—Jones Fibremasters—Lava Filling—New.
2—#1 Claffin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new
1—36" Bauer, Model 185 w/2—75 h.p. motors
1—Dilts #4 Hydrafiner
2—Dilts 36" Classifiners AF Brng.
1—Claffin #2—New fillings AF Brng.

ROLL GRINDERS
1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

ROLLS

Distributor—Stainless Steel
2— 8" dia x 115" face
1— 6½" dia x 115" face

Couch—Rubber Covered
20 Misc. Sizes Dwngs Available

Press—Rubber or Brass Covered
71 Miscellaneous sizes. Drawings available

Felt—Steel, Brass, Rubber Covered
335 Miscellaneous sizes. Drawings available

Celender—Chilled Iron
72 Miscellaneous sizes. Drawings available

ROTARY SCREENS
5—Bird #3A, Model 100 w/copper vats
1—Jones & Leithwalk copper lined

SHEETERS—WITH BACKSTANDS
1—45" Beck w/layboy
1— 50" Finley
6— 56", 60", 66" & 70" Hamblets
1— 65" Kidder w/elec. eye and layboy
1— 74" Hamblet w/motor
1— 76" Beloit Duplex
1— 82" Hamblet
1— 85" Hamblet duplex w/layboy
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A-F Brng

SLITTERS & REWINDERS

17¾" Maximum Rewind Diameter
1— 42" Cameron Type 26-2A

24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Model 6
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 52" Cameron Type 10
1— 60" Langston Shear Cut
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 70" Variable Speed Center Winder
1— 72" Cameron Model 8-10

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1—136" Cameron Type 18; A-F Brng
1—161" Cameron Type 18 w/60 h.p. Reliance VS Drive

48" Maximum Rewind Diameter
1— 86" M & W Four Drum Shear Cut
1—152" Langston Shear Cut

60" Maximum Rewind Diameter
1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston

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18" Maximum Rewind Diameter
1— 42" Cameron 26-7D for Cellophane
1— 52" Cameron Type 26-3A

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1— 42" Essex Shear Cut; A-F Brng
1— 42" Cameron Type 28-3
1— 92" Cameron Type 28-3 w/ vari-drive

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1—Bird Dirtec 12". Rebuilt by Bird
21—4" Vortraps—Bronze
3—Bird Centrifiers—Style CFL—S.S. New

STOCK REGULATORS
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4—Poirier; 25T /D cap

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1—160" face x 30" dia—roller brng

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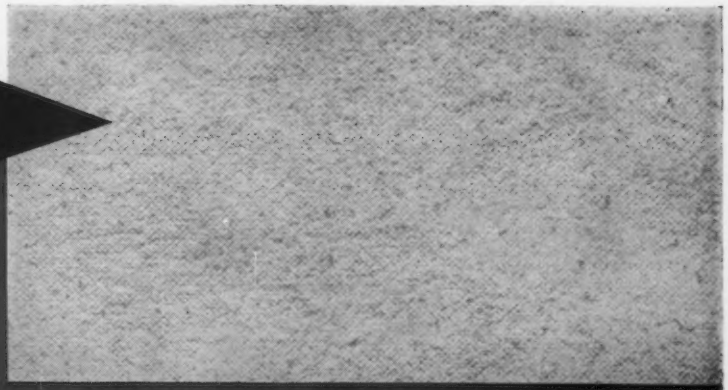

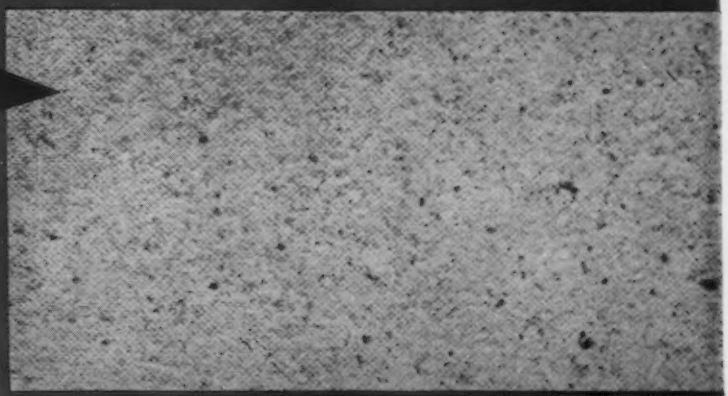

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